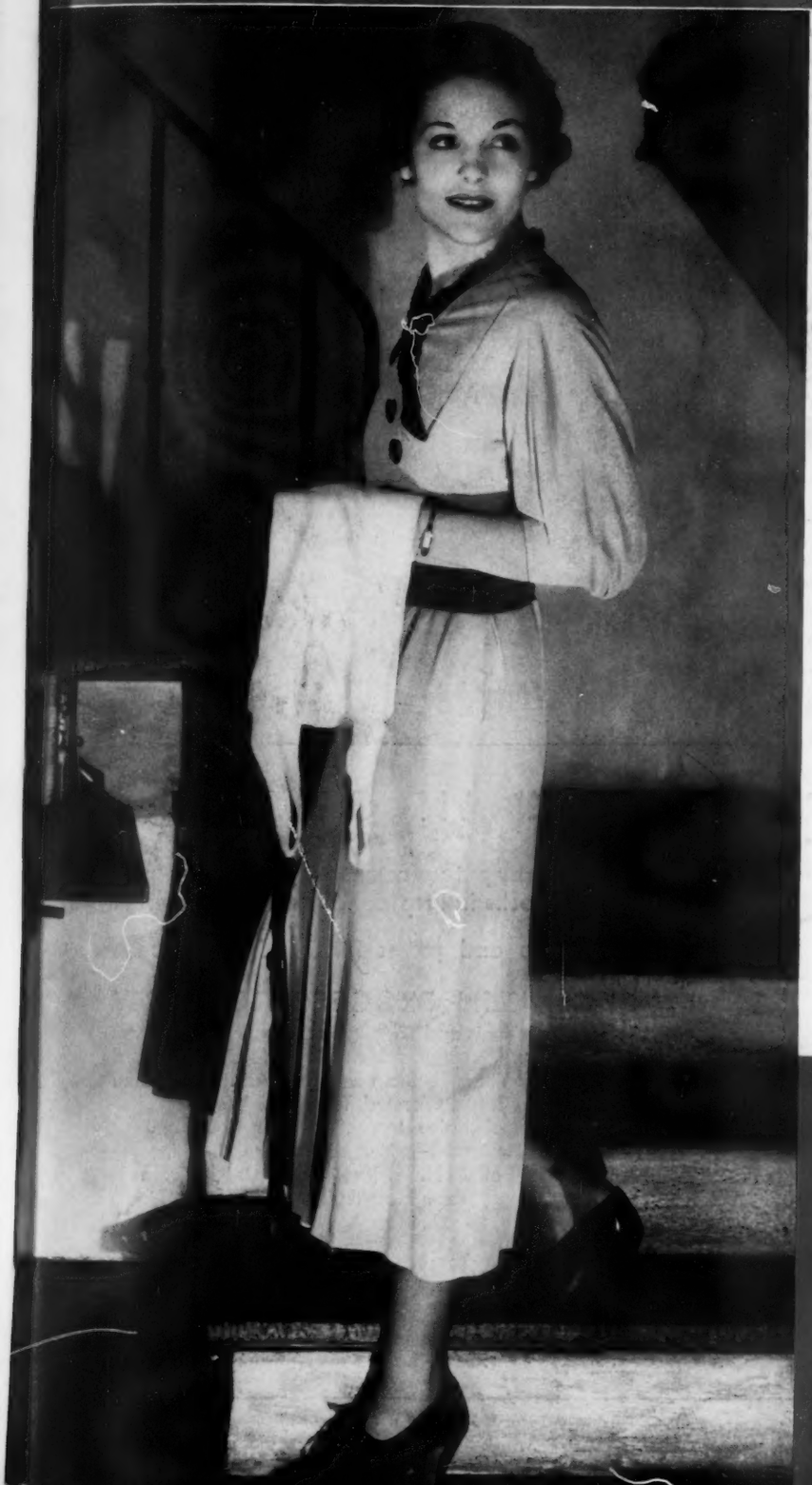
DECEMBER, 1934

COTTON

Serving the

TEXTILE INDUSTRIES



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And I'm buying more. It always looks nice and wears nearly forever."

CONTROLLED MANUFACTURE puts fine appearance and wear into DIXIE Durene. It helps you make merchandise that gets approval and repeat sales.

Dixie
MERCERIZING CO.
CHATTANOOGA, TENNESSEE

DIXIE DURENE... A Product of Controlled Manufacture

YARNS
WE DON'T TELL 'EM
WE SELL 'EM

F. P. YARNS NEVER VARY IN QUALITY

"Yarns of the sea" may vary greatly in quality, even when told by experienced "spinners."

On the other hand F. P. yarns never vary in quality, insofar as such a thing can be said of any cotton yarn. In other words they come from highly reputable mills that take special pride in standardization of quality, both in materials and in manufacturing methods.

F. P. offerings include all popular counts and qualities,— natural, bleached or dyed,

—in almost any put-up commonly used. We maintain large stocks in Providence and Philadelphia.

Samples and prices furnished on request.

FRANKLIN PROCESS COMPANY

Yarn Merchants and Yarn Dyers. Also Manufacturers of Glazed Yarns and Machines for Dyeing and Bleaching Yarns in the Package Form, Cotton and Wool Raw Stock, Worsted Tops and Worsted Yarn on Jackspools, also Machines for Soaking Silk. Main Office and Plant at Providence, R. I. Branch Plants at Philadelphia, Pa., Greenville, S. C., and Chattanooga, Tenn. New York Rep., 40 Worth Street

FRANKLIN PROCESS

COTTON YARNS AND CUSTOM YARN DYEING

COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga. Subscription Rates, United States and Possessions, $1.00 for one year; $2.00 for three years; Canada, $1.50 per year; Foreign Countries, $2.00 per year. Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

Five Years Ago

We Opened Our New

Warehouse at Spartanburg

With the Atlanta Office and Supply Depot this Doubled our Supply Service to the Southern Mills

The Experience of Five Years has Proved this Additional Service amply justified — We Appreciate the Splendid Way in which our Southern Friends have responded to our efforts to give them Better and Quicker Service—especially on Parts for Repairs

We can now Make Practically Immediate Shipment on all regular Supply parts for the Loom to both Northern and Southern Mills

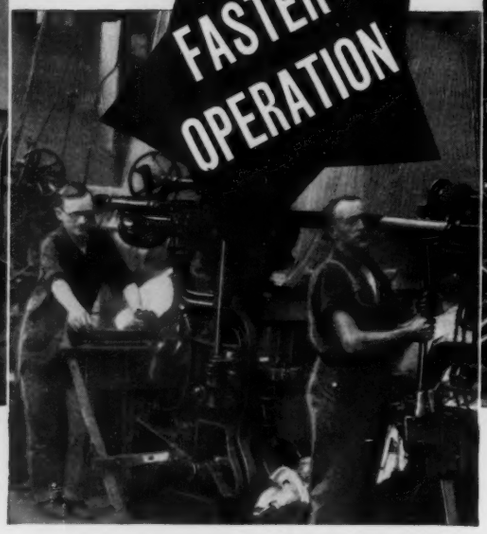
Most Mills now Understand the Economy — from the standpoints of Efficiency of Operation and Life of the Loom — of Using Only Draper Parts for Draper Looms

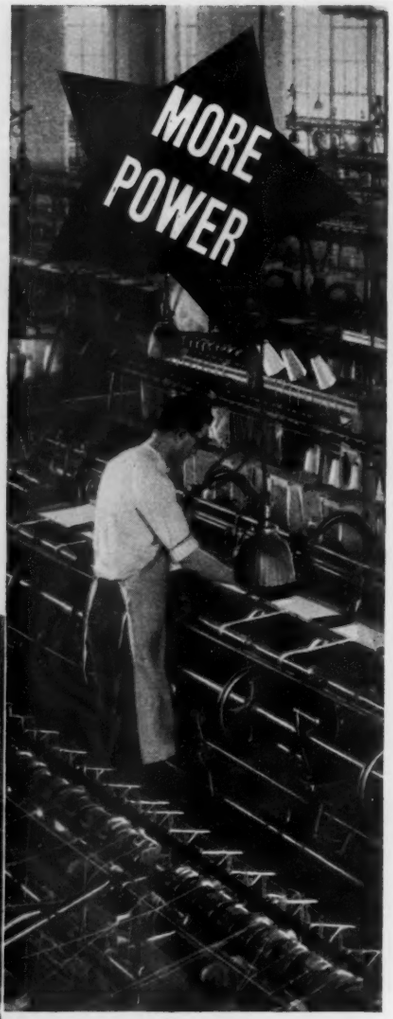
DRAPER CORPORATION

Hopedale Massachusetts

Southern Offices Atlanta Ga and Spartanburg S C

THESE *tested* LUBRICANTS WILL GIVE YOU





Many textile mills have proved that Texaco can reduce the frictional drag that wastes power throughout the mill. Texaco *tested* Lubricants for power plant equipment are exceptionally high in quality, always uniform and economical to use because they are so long lived.

Cards, combs, spindles, twisters, looms and many other kinds of production machinery will throw oil or grease on the material in process if the lubricants are not right. Texaco *tested* Lubricants will not throw out. They are carefully applied to your own operating conditions.

New high speed machinery and the speeding up of old equipment are present day factors, in textile operations, with which Texaco has been closely connected. A talk with a Texaco Engineer may show you a greater efficiency from your production units. And at no increase in operating expenses.

THE TEXAS COMPANY
135 East 42nd Street, New York City

TEXACO
REG. U.S. PAT. OFF.

TEXACO *tested* LUBRICANTS

NRA CODE

"There is a Texaco tested Lubricant for every purpose"

An eastern mill replacing slow speed warping with the Universal System of High Speed Coning and Warping reports a 58.5 per cent net return on an investment of a little over $19,000. Maintenance on this machinery is running them less than $100.00 a year.

In addition, they have certain *distinct* advantages in the Universal System not found in any comparable system.

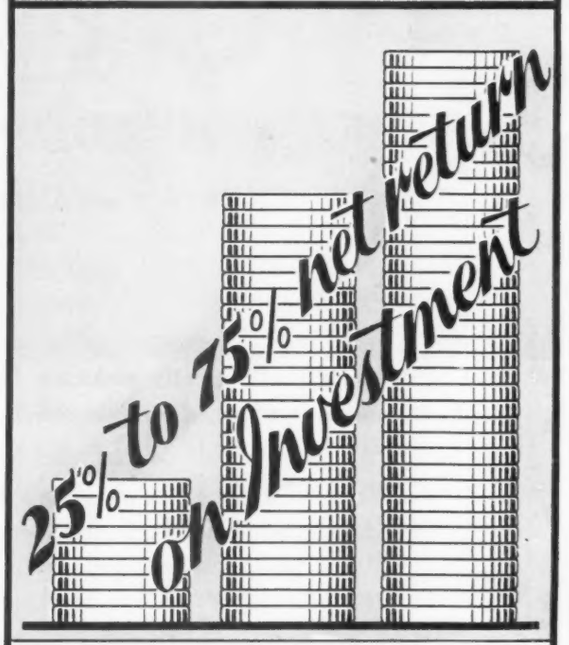
1. **A low investment cost.**
2. **Ability to handle *any* spinning bobbin.**
3. **Flexibility to change from one count of yarn to another.**
4. **Upon installation no complete upset of labor---no requirement of specially trained help.**

To *any* mill the Universal System of High Speed Coning and Warping will bring substantial savings over slow speed warping. To *most* mills it will bring a greater return on the investment than any comparable system.

May we present the complete facts for your mill, in the light of today's business set up? Write Dept. A., Boston; it places you under no obligation.

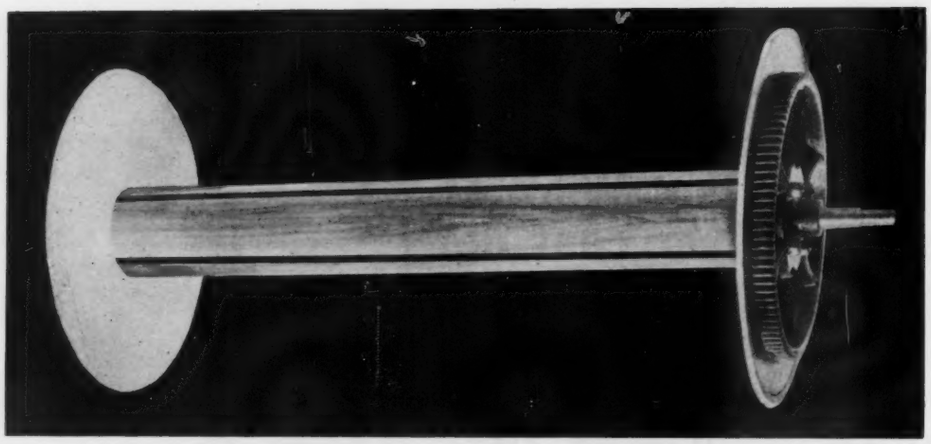
UNIVERSAL WINDING CO.
BOSTON

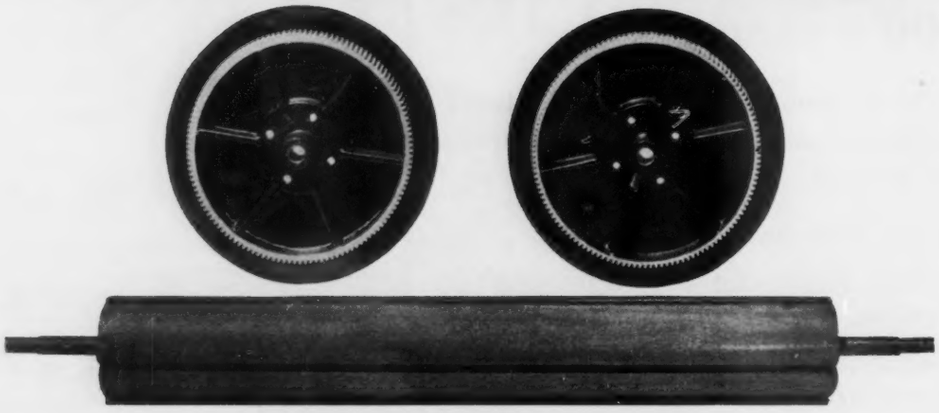
PROVIDENCE --- UTICA --- SPRINGFIELD --- NEW YORK --- PHILADELPHIA
CHARLOTTE --- ATLANTA



UNIVERSAL
High Speed Coning and Warping

1718





·LOOM BEAMS·

BEAM HEADS • BEAM BARRELS

Superior in Operation and Economy

THROUGH the use of West Point Loom Beams, Heads and Barrels, a constantly increasing number of textile mills are greatly reducing losses caused by broken or warped beam heads.

West Point Special Alloy Cast Iron Heads are machined true and, because of their high tensile strength and close grained structure, reduce breakage to a minimum.

For best results our Patented Loom Beam Steel Heads are recommended. The joints are riveted, thus eliminating warpage caused by heating in a welding process. All other details of construction likewise have been worked out to give satisfaction and lasting service. These heads are practically indestructible.

Superior quality, fair prices and reasonable delivery have established us as a leading manufacturer of Loom Beams, Heads and Barrels.

Inquiries Solicited

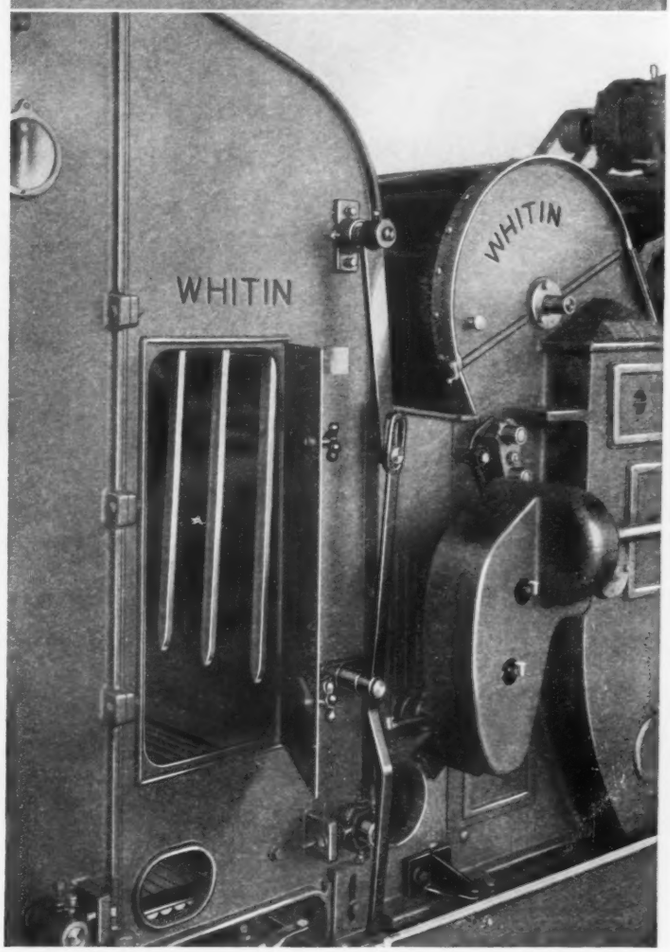
WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA.

Also manufacturers of Cloth Inspecting Machines, Textile Gears, Card Cylinder Bearings, Loom Bearings, Picker Drives and Loom Parts.

The WHITIN 1934 Picker Installation



the result of more than one hundred years of progress in building Preparatory Machinery

Why use an Intermediate Feeder in a One Process Picker?

BECAUSE cotton deposited unevenly on the cages due to air drafts, unless corrected by the Intermediate Feeder, *is carried forward to the cages in the next section in the same uneven sheeet.* The Intermediate Feeder corrects uneven distribution of the cotton across the width of the cages.

BECAUSE the large capacity hopper in the Intermediate Feeder *aids in the proper opening and blending of the stock.*

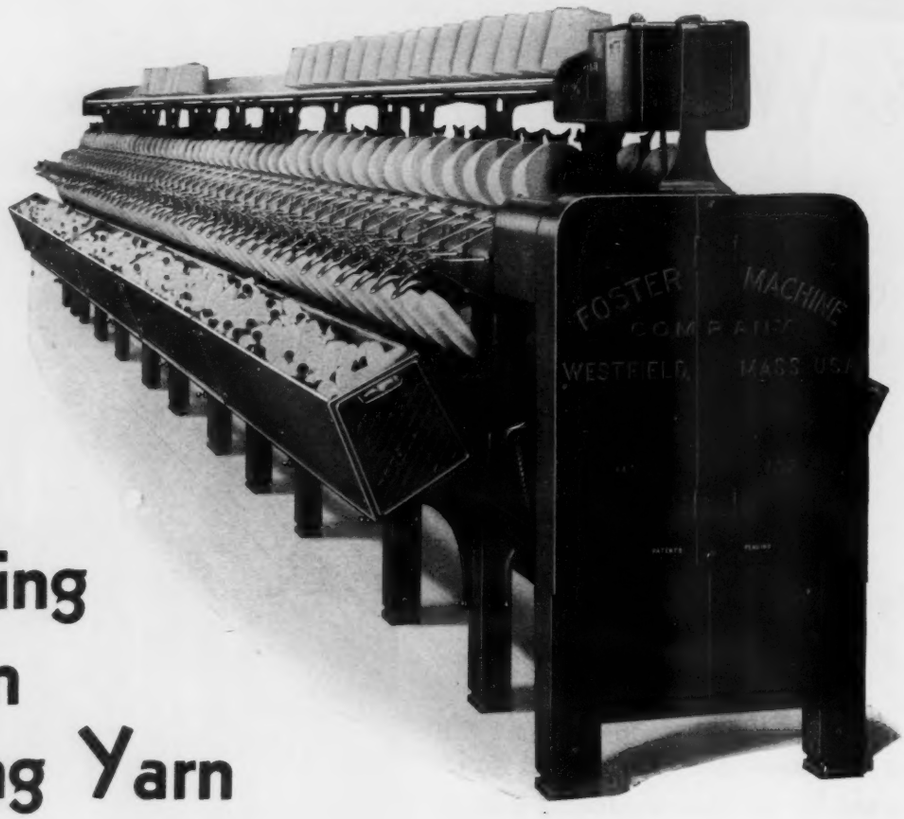
BECAUSE the supply of cotton in the hopper can be maintained within very close limits, which permits the cone belt *to work in a narrow range of the cone surface at all times.*

BECAUSE reducing the work which the Evener belt has to do permits the Evener to function more efficiently. The Evener cone belt *has less power to transmit in controlling the Feed preceding the finisher section.*

The stock is evened BEFORE it reaches the Feed Rollers

All parts readily accessible for rapid adjustment. Cleanout doors conveniently located, of ample size. Ball-bearings used generously throughout wherever practical and advantageous.

WHITIN MACHINE WORKS **WHITIN** WHITINSVILLE, MASS.



Cone Winding Cotton Knitting Yarn

CONE WINDING, the final process in yarn mills and mercerizing plants making yarn for Knitting is the mills' most important process and if scientifically done, will assure satisfied Knitting customers.

Model 102 winding adds this value to a mill's product.

Two of the qualities Foster Model 102 cones have that are appreciated by Knitters are **EVEN DENSITY** always and **SOFTNESS** when necessary especially on mercerized yarns. These qualities make for even tension and even give-off of the yarn from the cone on the Knitting Machine and are reflected in the resulting high grade appearance of the Knitted fabric.

Foster Machine Company

WESTFIELD, MASSACHUSETTS

FRED P. BROOKS, REPRESENTATIVE, BOX 941, ATLANTA, GA.

A name synonymous with PROGRESS in QUALITY PRODUCTS

Nearly three years ago we published an advertisement using this same heading—at a time when we could sum up so many evidences of accomplishment that to us then, it seemed as if the ultimate had been achieved in research, manufacturing, efficiency, and quality of product.

But the habits and momentum of more than 30 years of research and development have carried on. Experiments commenced in 1930 bore fruit in 1934. Notably the Single Head Thread Spool—the perfect package for industrial thread.

Closely following came the new Satin Finish for cones and tubes—an improvement on the famous Velvet Surface for the packaging of finest count rayon and silk yarns.

Constant effort developed remarkable improvements in the Sonoco Cork Cot—the Sonoco Pull-On Machine and the Buffing Machine.

Certain basic improvements in construction of cones and tubes brought us closer to perfection in quality all through our line of paper carriers.

1935 will bring more and greater progress in all lines of endeavor. SONOCO may be depended upon to keep pace with the leaders.

SONOCO PRODUCTS COMPANY

Main Plant and General Offices:

HARTSVILLE, SOUTH CAROLINA

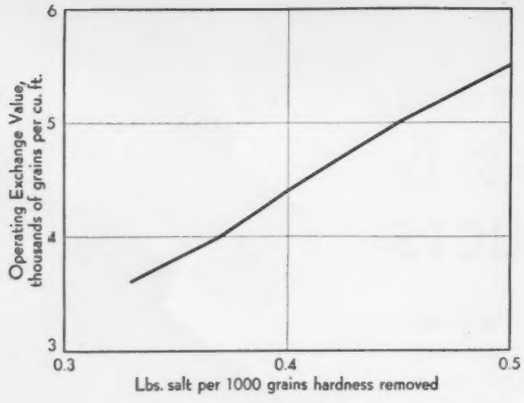
Branch Plants:
Rockingham, N. C.
Garwood, N. J.
Brantford, Ont.

NRA MEMBER U.S. WE DO OUR PART

Eastern Sales Office:
North Avenue,
Garwood, N. J.

SUPER

A NEW AND



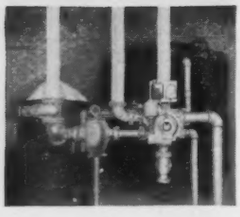
than ever before, and at the same time its water softening power is increased. We call this new zeolite SUPER-ZEO-DUR. The maximum capacity of SUPER-ZEO-DUR is 75% greater than that of regular greensand zeolite. Or to put it another way, even if operated at sharply reduced salt requirements, Super-Zeo-Dur is substantially higher than ordinary greensand. The relation between salt consumption and capacity is shown in the chart.

• This is an important announcement to every owner of water treating equipment, and to every plant that needs such equipment. Permutit now offers an improved zeolite for water softeners . . . of higher capacity, of greater ruggedness, of lower salt requirements per 1,000 grains of hardness removed.

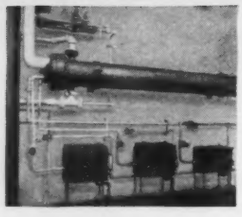
ZEO-DUR, Permutit's greensand zeolite, has long been known for its resistance to wear and tear. Now, by a series of special treatments, it is made more rugged

LASTS LONGER . . . Super - Zeo-Dur is tougher and more resistant to abrasion than any other zeolite. Special treatments cleanse and purify it so that the final granule is tougher than ever before. At the same time, these treatments greatly increase its capacity.

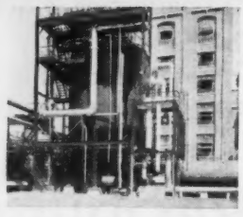
CUTS COSTS NOW . . . Repeated tests prove that Super-Zeo-Dur requires less salt than ever before to obtain water of zero hardness. This economy is maintained in large and small plants alike. The owner saves not only on the cost of his salt, but also on the freight cost of transporting it and the space cost for storing it.



Permutit Automatic Zeolite Water Softener . . . Lowers the cost of producing soft water. No overrunning. No under-regeneration. Automatic controls can be applied to existing equipment. Write for "No Scale, No Sludge, No Mud."



Permutit Continuous Boiler Blowoff Equipment . . . For continuously maintaining the desired concentration in boilers, with recovery of heat from the blowoff water. Write for "How to Save Fuel and Improve Steam Quality with Permutit Continuous Boiler Blowoff Equipment."



Permutit Hot Lime Soda Water Softener . . . For reducing total solids, particularly in waters of high bicarbonate hardness. Write for information.

CO_2 *Indicators and Recorders* — Ranarex, the fully mechanical CO_2 Indicator and Recorder. Strong, rugged, yet with accuracy of 0.3% CO_2. Normal time lag of less than one minute. Fuel savings quickly return its cost. Write for bulletin describing operation.

ZEO-DUR

BETTER ZEOLITE

HAS A RESERVE CAPACITY This new zeolite has a flexible capacity. If you need extra water softened, just use proportionately more brine. This flexibility creates a reserve capacity for softening water . . . to be used for emergencies or for increased capacity in the future . . . and requires only a normal increase in brine (see chart).

SUPER-ZEO-DUR has been thoroughly tested by long runs at all ranges of softening capacity. It is a definite money saver. For instance, to remodel existing zeolite water softeners to automatic control and refill them with Super-Zeo-Dur, will repay, on the average, 50% per year of the conversion cost. Beside this cash saving, the fully automatic plant operation is simpler and more positive, there is no danger of overrunning, and there is a reserve water softening capacity at hand to meet peak or emergency demands.

Obviously, with this new zeolite and fully automatic control, the new Permutit zeolite water softeners are the last word in foolproof, low cost operation.

Super-Zeo-Dur is the most recent addition to the line of Permutit products. There is Permutit equipment to meet every water treating requirement. Some of these products are featured below.

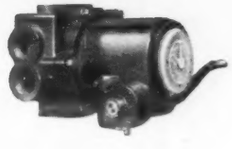
We are always at your service to advise you on your water problems, to produce for you water of the specifications which you desire. Write for information on any of the Permutit products. And be sure to find out just how much money a refill of Super-Zeo-Dur in your present equipment will save you! No obligation . . . just write The Permutit Company, 330 West 42nd Street, New York, N. Y.

Permutit WATER TREATING EQUIPMENT

Heat Exchangers . . . Turbulence scrubs off stagnant water film from surfaces, permits higher rate of heat transfer. Design allows for unit increases in capacity. Uni-metal construction avoids electrolysis corrosion. Ask for information.

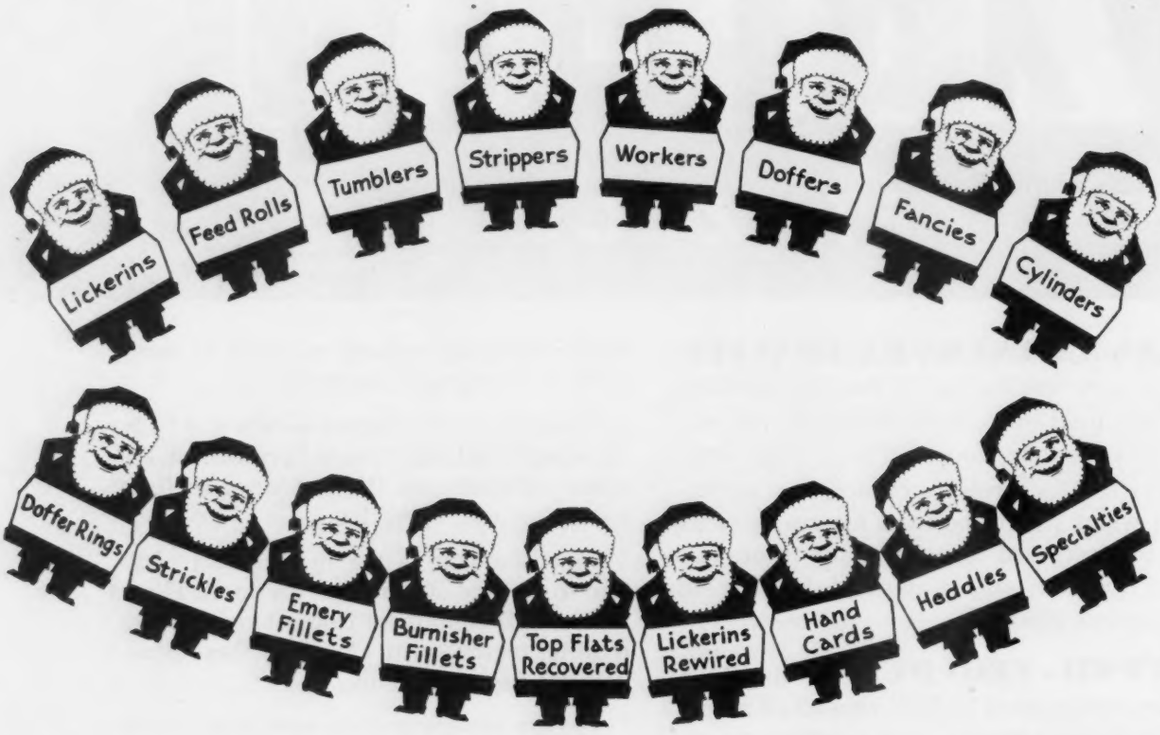
Chemical Feeds . . . For feeding sulphates, phosphates and other solutions in exact proportion to flow of water. Also constant flow types. Special acid feeds. Feeds for dry materials such as clay. Bulletins available.

Filters . . . Both pressure and gravity types, in all sizes, for removal of dirt, color and turbidity. Coagulation equipment. Activated carbon filters for removal of bad taste and odor. Send for a free copy of "Water Filters & Filtration Equipment."



Single Valves . . . To simplify the operation of zeolite water softeners. Made in all sizes, they can be used with existing equipment. Single valves for filters, too. We'll be glad to send you information and prices.

The Entire Tuffer Family--



Wishes You a Merry Christmas

Whatever portion of the Tuffer family you employ, they all wish you a Merry Christmas.

We hope that 1935 will be prosperous and successful for you, and that you will permit Tuffer to help you attain that position.

In Card Rooms, the textile industry over, Tuffer Card Clothing products have cut down time loss, increased production, and helped to turn out more even stock on every run. Every facility of the Howard Bros. organization is at your disposal to duplicate these savings in your plant.

Tuffer Products
Lickerin Fillets
Feed Roll Fillets
Tumbler Fillets
Stripper Fillets
Worker Fillets
Doffer Fillets
Fancy Fillets
Cylinder Fillets

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.

Tuffer Products
Doffer Rings
Strickles
Emery Fillets
Burnisher Fillets
Top Flats Recovered and extra sets loaned.
Lickerins Rewired at Southern Plant.

Midgley Patented Hand Stripping Cards and Inserted Eye and Regular Wire Heddles

HOWARD BROS. MANUFACTURING CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.

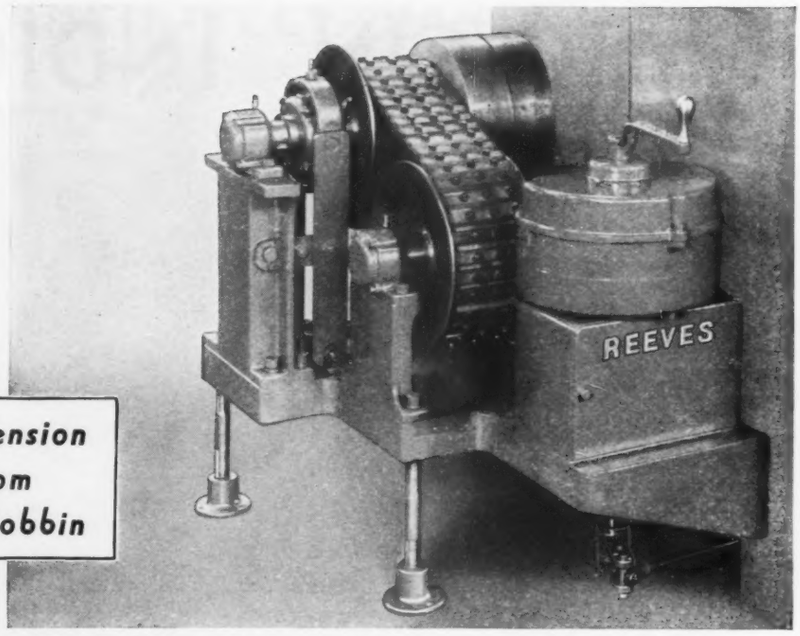
Southern Plant
244 Forsyth Street, Atlanta, Ga.

Branch Offices
Philadelphia, Pa., Dallas, Texas, and Washington, D. C.

NEW REEVES Variable Speed SPINNING FRAME DRIVE

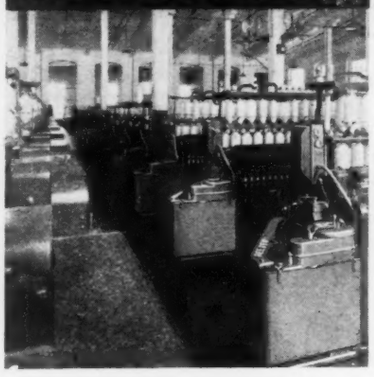
Latest addition to REEVES line of Variable Speed Control Units provides automatic regulation of belt-driven spinning frames—each frame controlled individually, taking its power from overhead motor or line-shaft.

Insures Even Tension On Yarn from Empty to Full Bobbin



New Belt-driven Unit with Cover Guard Removed

IMPROVED INDIVIDUAL MOTOR DRIVE



Typical Mill Installation

AUTOMATIC speed regulation—long desired for Spinning Frames—became a reality when the REEVES Variable Speed Spinning Frame Drive was introduced two years ago. Now this Individual Drive tested in hundreds of installations—improved and refined—is demonstrating its sensitive and dependable control in an increasing number of mills. May be installed on old or new Frames. Uses any standard motor, old or new. Requires no more space than a standard Spinning Frame motor with multiple V-belts or enclosed chain drive.

THIS new design is another important development by REEVES to effect better spinning conditions through automatic control of yarn tension from empty to full bobbins.

The many advantages made possible by the REEVES Individual Motor Spinning Frame Drive are secured with this new belt-driven unit—an even yarn tension and twist, more uniform yarn size, less end breakage, greater elasticity, production increase, and immediate changes in speed—when changing yarn sizes—without loss of production.

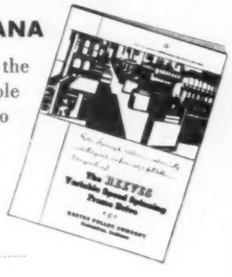
As on the REEVES Individual Motor Drive, there are two types of Automatic Control—one for filling and combination build and the other for warp build. Both permit starting at a slow speed on an empty bobbin, gradually increasing speed as the bobbin fills, running at high speed in the center and slowly decreasing during the last of the doff. ANY low or high between the limits of the DRIVE may be obtained as well as ANY rate of increasing or decreasing.

This new belt-driven Unit is easily installed. Bolts directly to the spinning frame, making a rigid, positive compact and sturdy drive of utmost simplicity. Adjustable motor base can be furnished for changing to individual motor drive, when desired. Write today for new folder, giving complete details of construction and operation.

For Complete Information — Mail Coupon for Bulletin

REEVES PULLEY CO., COLUMBUS, INDIANA

Please send copy of your Bulletin T-800 which describes the operation and construction of the new REEVES Variable Speed Spinning Frame Drives and how they are applied to new or old frames.



Name.....

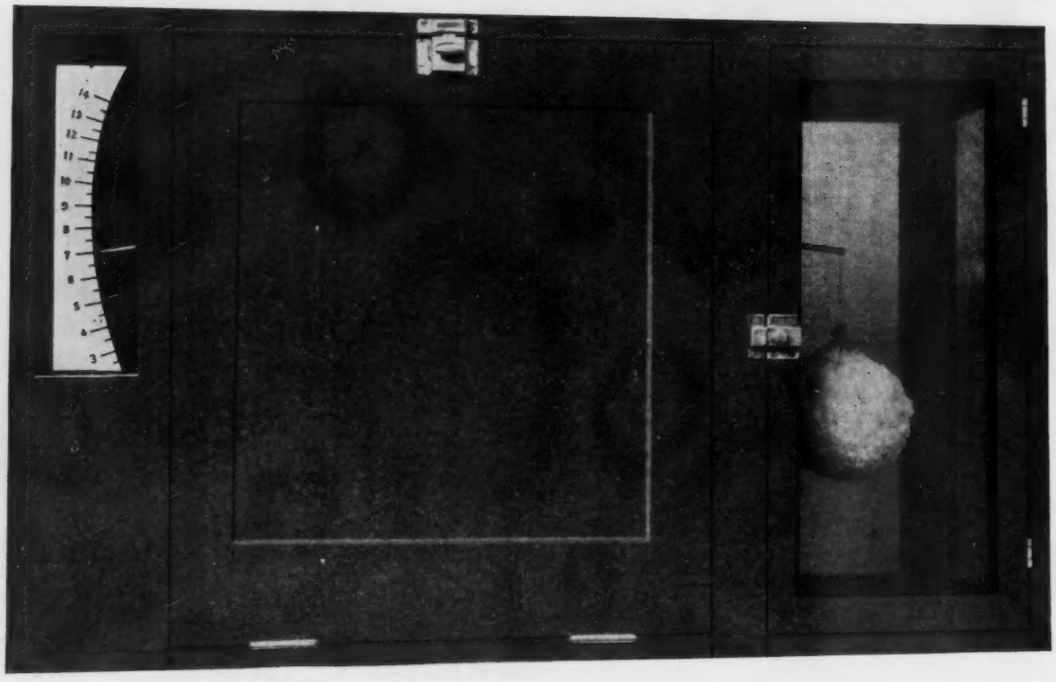
Company.....

Address.....

(12-34)

The Aldrich

REGAIN INDICATOR



AS NECESSARY IN A COTTON MILL AS A CLOCK OR A THERMOMETER

The weight of cotton and anything made of cotton changes with the weather. The Aldrich Regain Indicator tells you how much it has changed, and what to do about it.

By using Regain Indicators, hundreds of cotton mills are

"Making Evener Yarn in Any Kind of Weather"

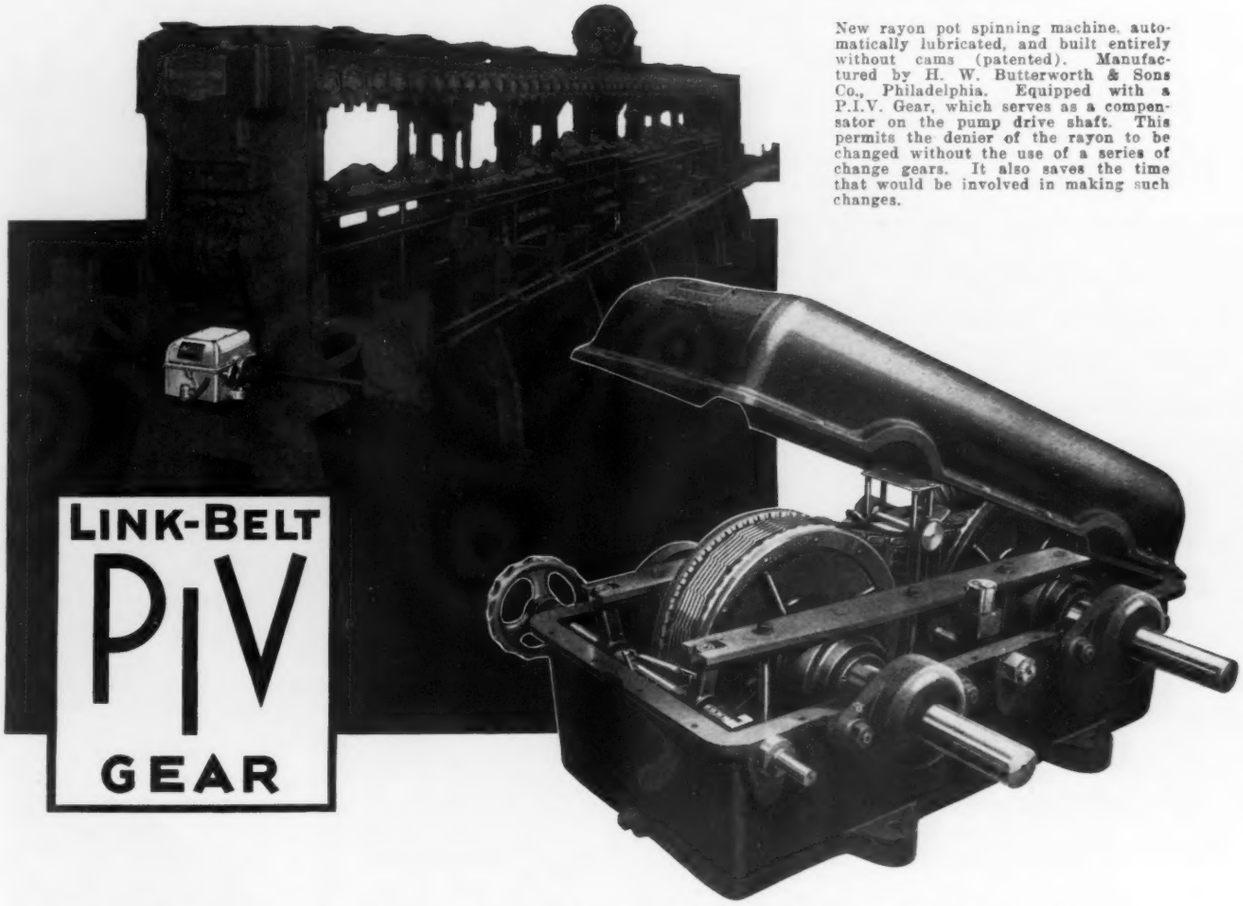
Made and installed by

AldricH MachinE

Greenwood, **WorkS** South Carolina

any Speed INSTANTLY

POSITIVE—INFINITELY VARIABLE



New rayon pot spinning machine, automatically lubricated, and built entirely without cams (patented). Manufactured by H. W. Butterworth & Sons Co., Philadelphia. Equipped with a P.I.V. Gear, which serves as a compensator on the pump drive shaft. This permits the denier of the rayon to be changed without the use of a series of change gears. It also saves the time that would be involved in making such changes.

EVERY textile machine that needs speed control to assure product quality, needs a P.I.V. Gear. Only in these unique units can you get Positive Driving—no slippage; Infinite Speed Variation—to a fraction of a revolution; and Accurate Speed Control—either by a single hand wheel on the gear case, by remote control with revolution indicator at control station, or by semi- or fully-automatic control device.

To get the most out of every textile machine, where material, quality or weight is subject to change, where the skill and experience of operators vary, where the correct change in R.P.M. means improvement of finished quality, install a P.I.V. Gear.

Write for Book No. 1274, which completely illustrates and describes the "any speed instantly" P.I.V. Gear.

LINK-BELT COMPANY

PHILADELPHIA PLANT
2045 West Hunting Park Avenue

INDIANAPOLIS
DODGE PLANT
519 North Holmes Avenue

CHICAGO PLANT
300 West Pershing Road

ATLANTA PLANT
1116 Murphy Ave., S.W.

BALTIMORE DALLAS NEW ORLEANS

Offices in Principal Cities

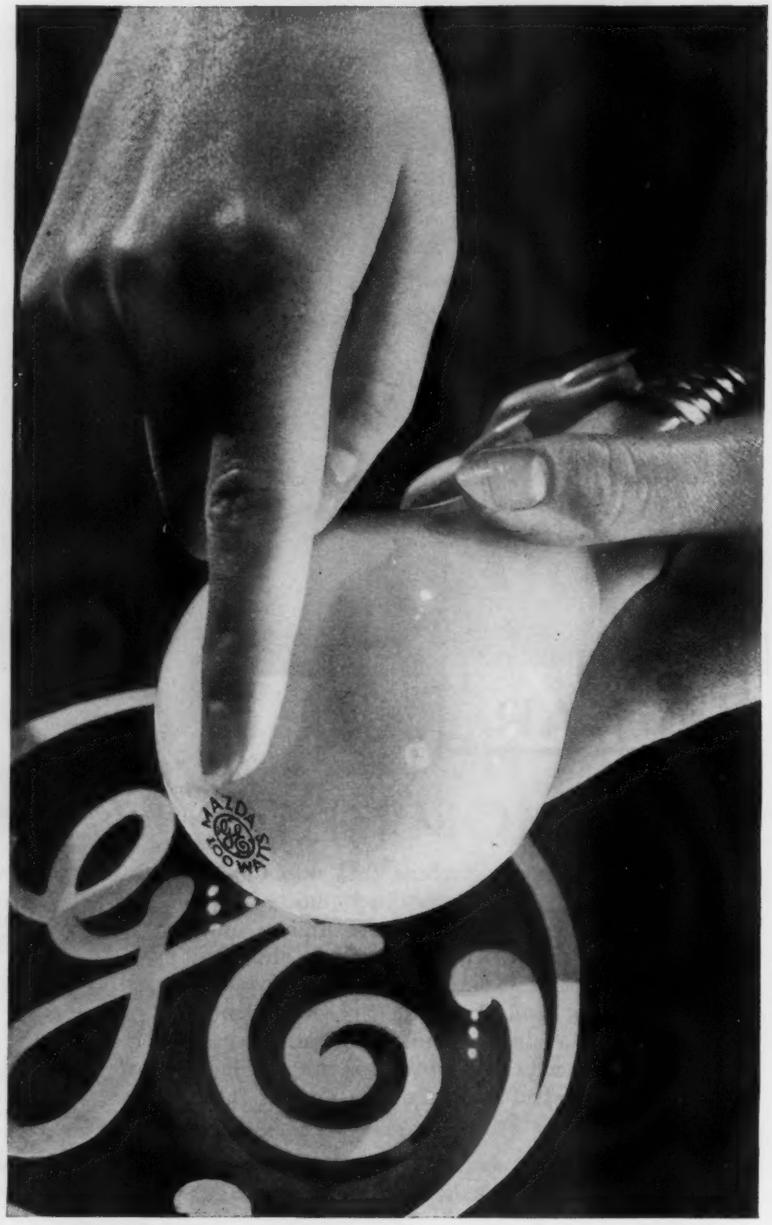
5005

Use LINK-BELT POSITIVE DRIVES

SILENT CHAIN · SILVERLINK ROLLER CHAIN · SPEED REDUCERS
VARIABLE SPEED TRANSMISSION · CHAIN DRIVES (ALL TYPES)

"My life is controlled to

SAVE YOU MONEY!"



HERE'S something you may not know about incandescent lamps. If a lamp continues to burn long after passing its maximum efficiency, you pay for light you do not get. For efficiency in a lamp is the amount of light produced for the current consumed.

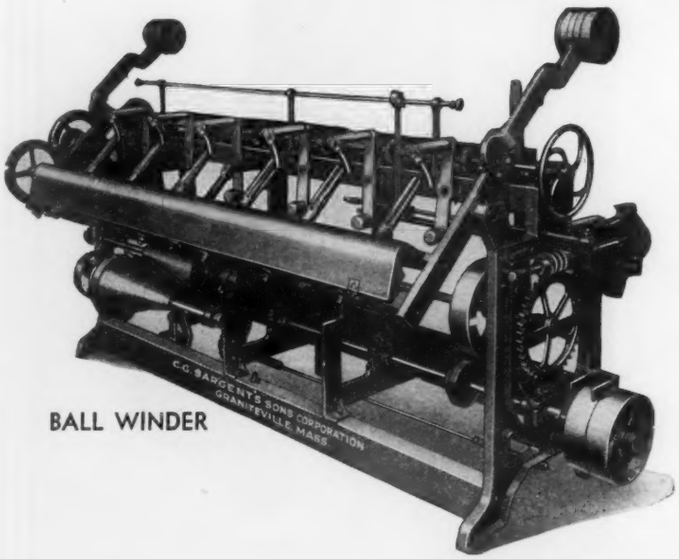
How foolish it is to attempt to "save" money on lamps when current cost is so much larger a factor in your lighting bill. MAZDA lamps protect you from this lighting waste because they are designed for a life that will provide you with a maximum amount of light for the current consumed, and thus save money that would otherwise be spent in wasted current.

When you buy lamps, look for the mark GE and be sure that your lamps will give you maximum light for their designed life. General Electric Company, Nela Park, Cleveland, Ohio.

EDISON MAZDA LAMPS

GENERAL ELECTRIC

MARKET CONDITIONS DEMAND FLEXIBILITY



BALL WINDER

Sargent's Ball and Card Winders are so constructed and designed that with few adjustments these machines are rendered capable of winding various types of material into many different packages.

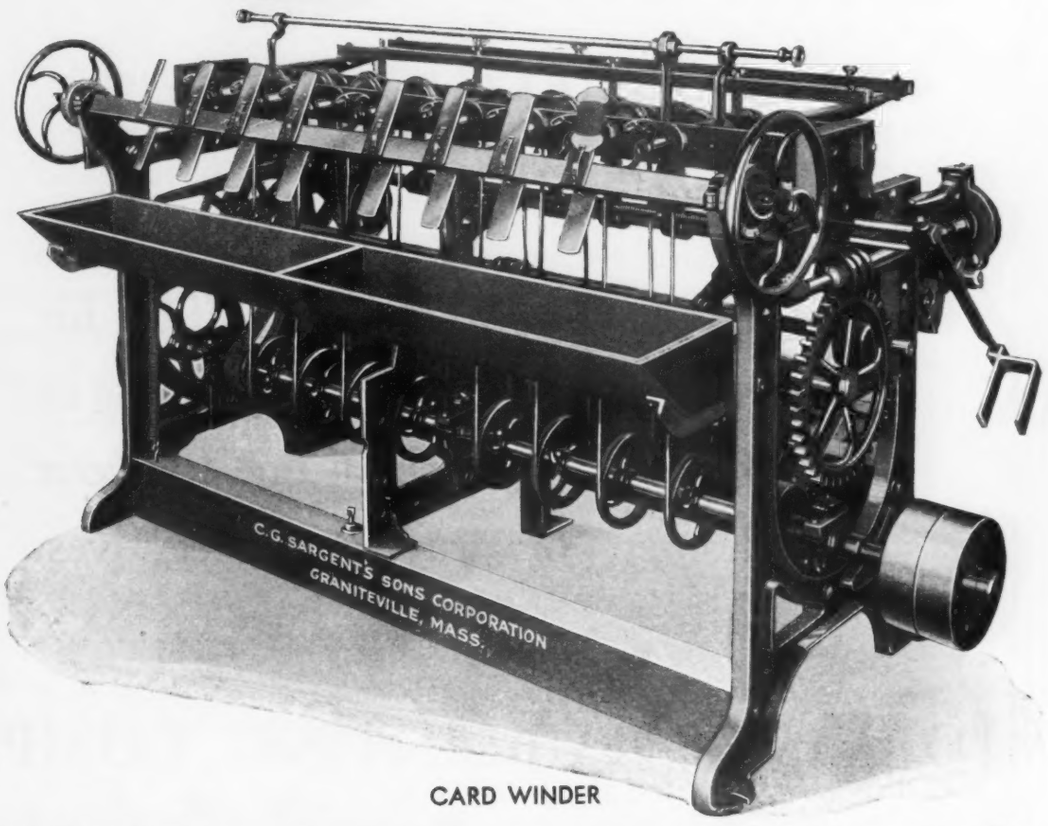
The machines pictured will wind in ball or card form tinsel, wrapping twine, cotton or woolen yarns, knitting silk, thread, wicking, hemp, jute, paper twine and ribbon.

In these times of changing markets, the manufacturer must be prepared to readjust his machinery to meet the varying demands. Sargent's Ballers and Card Winders give the mill owner a distinct advantage,—a few minor changes and he is well fitted for an entirely different market.

The flexibility of this equipment is a feature every prospective buyer should consider.

Also Manufacturers of

Automatic Feeders
Bagging Machines
Cloth Dryers
Cotton Stock Dryers
Continuous Automatic Extractors
Cotton Rinsers
Dusting Machines
Opening Pickers
Skein Dryers
Wet Pickers
Yarn Conditioning Machines



CARD WINDER

C. G. SARGENT'S SONS CORPORATION

Southern Agents
Fred H. White, Charlotte, N. C.
Fred T. Brooks, Atlanta, Ga.

Founded 1852
GRANITEVILLE MASSACHUSETTS

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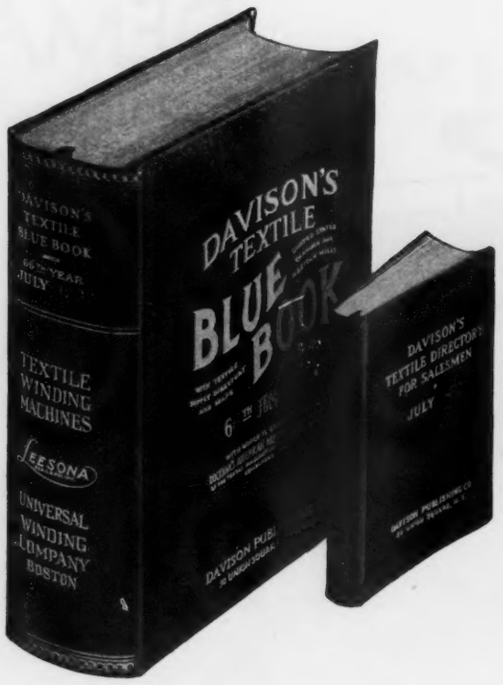
Standard since 1866



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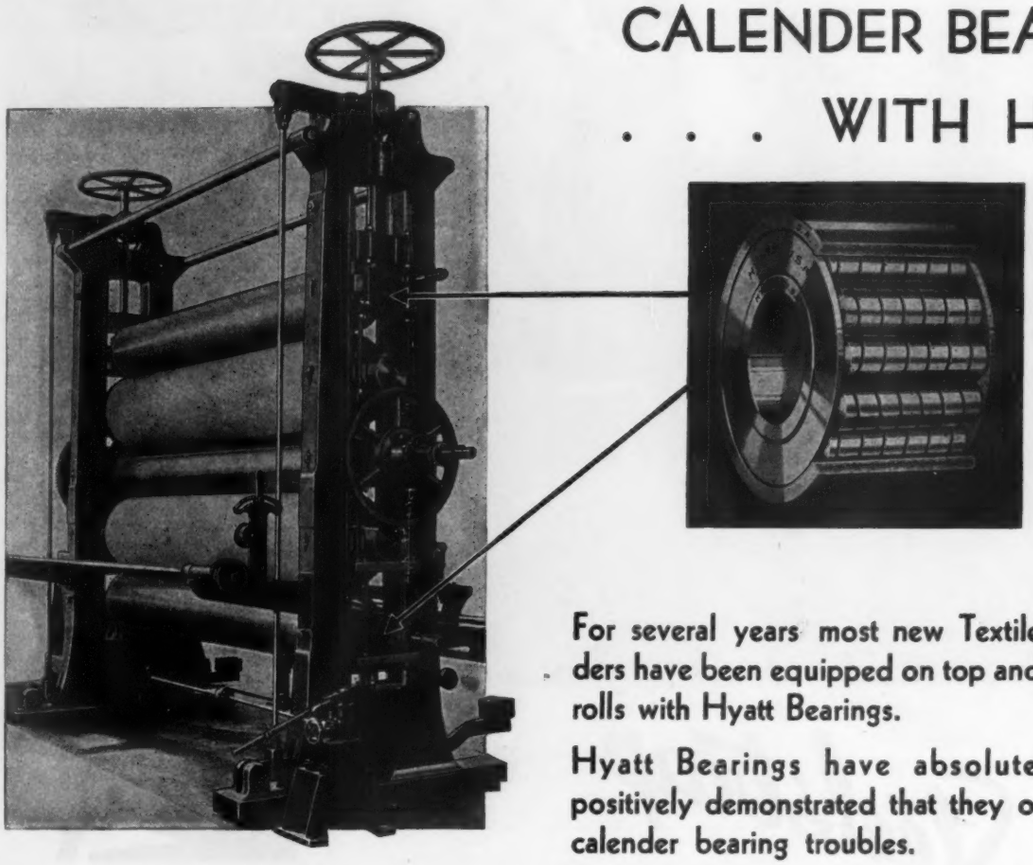
IT'S EASY TO CHANGE OVER CALENDER BEARINGS . . . WITH HYATTS



For several years most new Textile Calenders have been equipped on top and bottom rolls with Hyatt Bearings.

Hyatt Bearings have absolutely and positively demonstrated that they overcome calender bearing troubles.

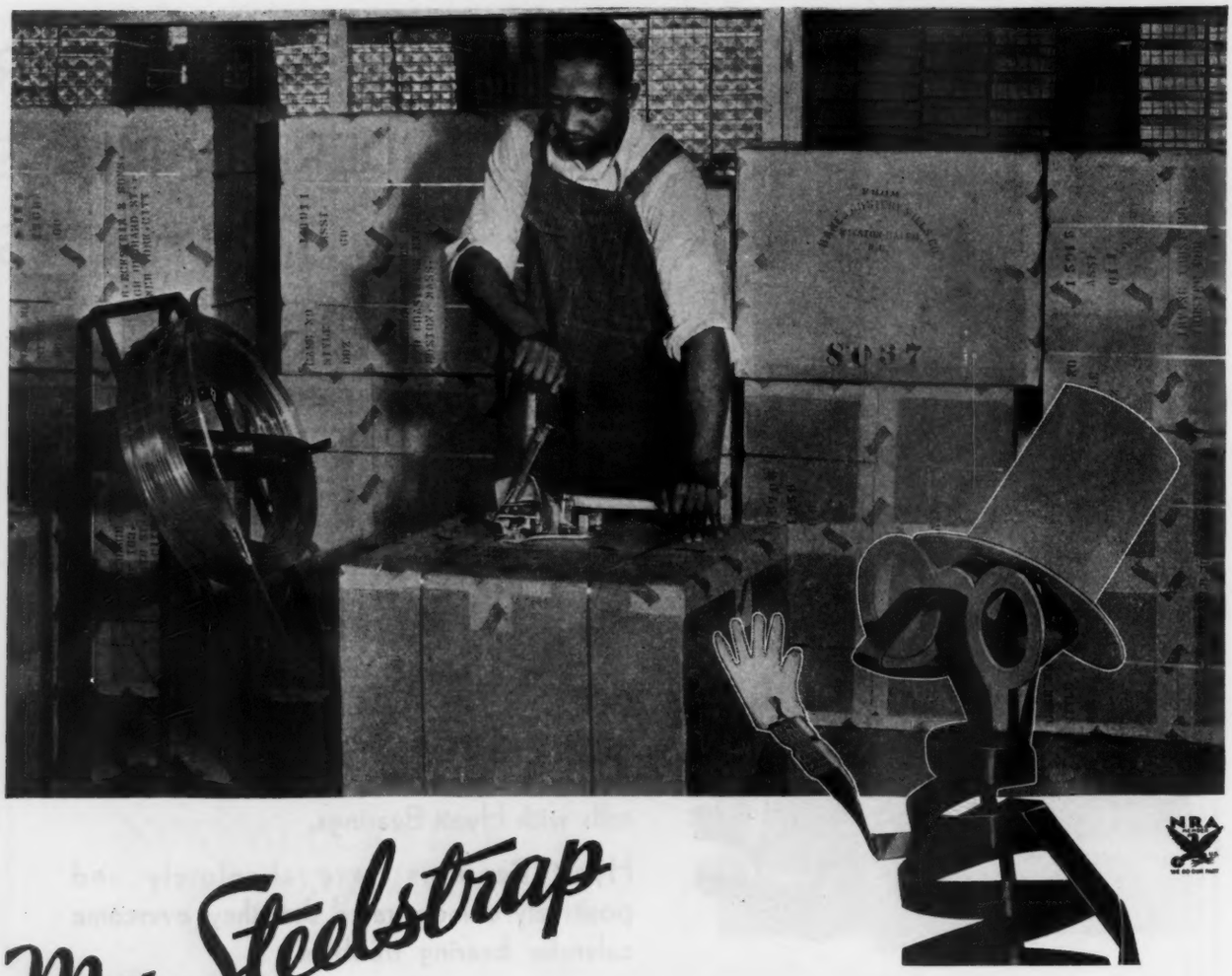
Now—the installation of a great number of these bearings in old calenders has been successfully made without necessitating any change to window openings.

Several distinct advantages accrue.

1. Husk rolls do not burn out in the center due to heat generated by plain bearings.
2. Calenders may be run much faster.
3. Bearings no longer are a greasy, dirty mess but are effectively sealed against oil leakage. Clean calenders result.
4. Very little lubrication is required.
5. A great deal of power is saved.

Write us for any further information desired or ask your calender builder.
Hyatt Roller Bearing Company, P. O. Box 476, Newark, New Jersey.

HYATT
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS



My Steelstrap

TREATMENT MAKES THE MOST HEAVILY LOADED CASES "*Bound to Get There*"

Just two slender tempered steel straps, tightly tensioned and sealed around a 140 pound package like this, increase its carrying efficiency 100%. And in addition to adding strength, the Acme seal makes the package mighty hard to get into—preventing to a great degree the possibility of pilferage.

Scores of mills have adopted this safe, modern method of shipping—depending on the Acme Steelstrap system for quick economical reinforcement.

Send for a sealed sample of the special Steelstrap being used by most mills for this purpose—and full particulars. Of course there is no obligation.

Doc. *Steelstrap*

BALE TIES

For more than a quarter century, Acme Bale Ties have served the textile industry. Strong, clean, rust-resisting. Secured with Acme Bale Tie Seals, or Buckles.

Acme Steelstraps

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Like a Violin with a broken string~

~FINE EQUIPMENT is handicapped with *inferior Textile Compounds!*

True—a violin *can* be played with only three strings . . . but it's handicapped!

Your equipment *will* produce fabrics with inferior textile compounds . . . BUT IT'S HANDICAPPED!

To get the most out of your equipment investment—to get every advantage OUT of your machinery that the maker built INTO it . . . use ONYX laboratory-controlled textile compounds.

ONYX compounds are founding compounds assure even shades—fine prints—soft, rich feel and appearance on all fabrics. They cost less to use. They give accurate control over your processing. They reduce losses due to re-runs, seconds and claims. And they bring better prices for your fabrics.

ONYX compounds are founded on research, perfected in mill practice and manufactured under laboratory supervision. They are always uniform.

With all these advantages to be gained, it is "penny wise, pound foolish" to risk your production with "cheap", inferior textile compounds. Your profits in the *results* you obtain!

Write for samples, stating operation and fabric. We stand ready to prove these benefits right in your own mill.

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NEW USES EVERY DAY

FOR THIS STURDY, ECONOMICAL

CLAMP GATE VALVE

Read why all industry is adopting these clamp gate valves in small sizes

● These small, inexpensive iron clamp gate valves fit into a wide variety of jobs . . . industry is finding new uses for them every day. One small part will, in all valve sizes, provide a new thread bushing for the stem. Stem threads are entirely outside the body in the outside screw and yoke type and therefore not subject to action of liquid or gases in the line. Available in screwed or flanged ends, brass mounted for general industrial use and all-iron for corrosion resistant purposes. Complete line of small sizes.

SCORES OF APPLICATIONS FOR THIS VERSATILE VALVE!

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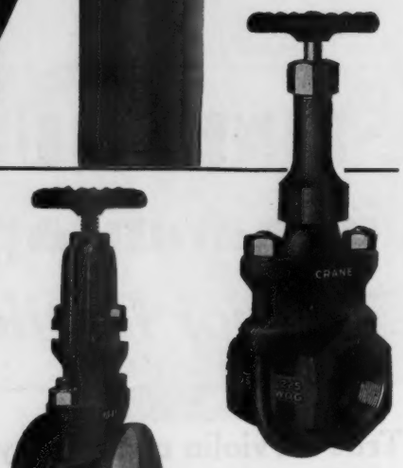


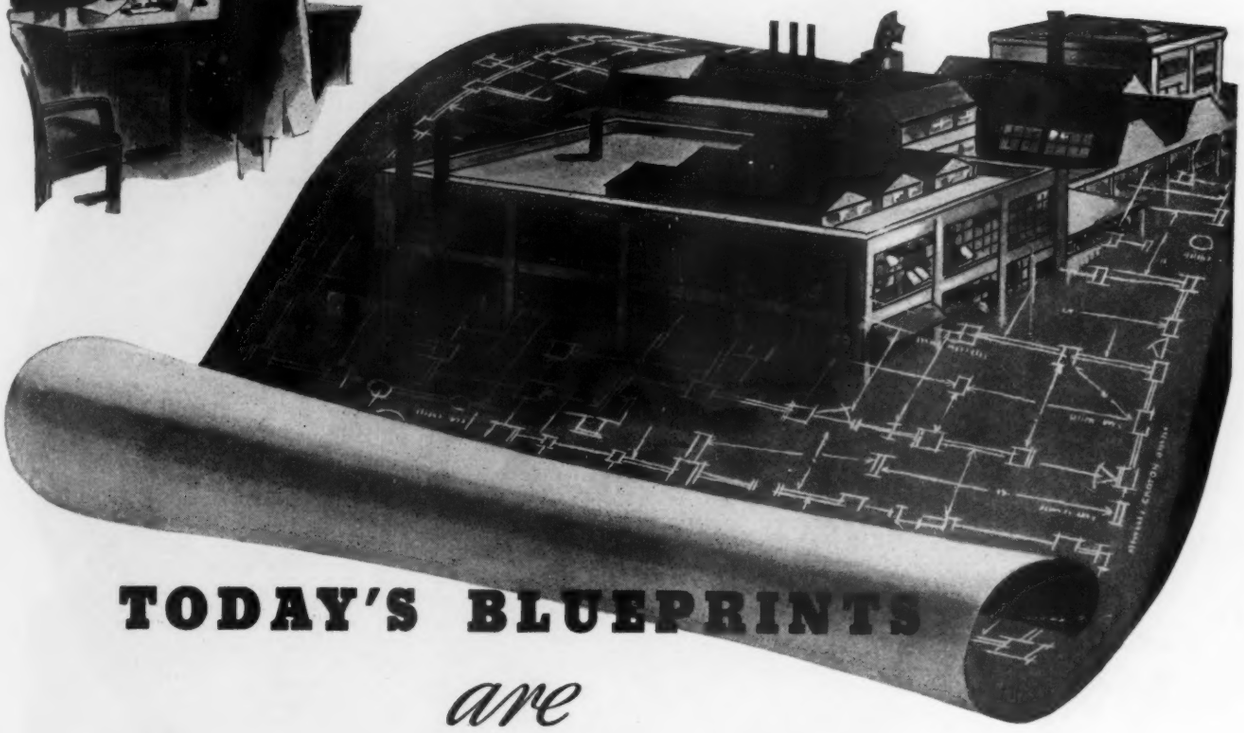
Crane Clamp Gate Valve No. 490—Brass Mounted, Inside Screw

Crane Clamp Gate Valve No. 487½—Brass Mounted, Outside Screw and Yoke

Crane Clamp Gate Valve No. 486½—Brass Mounted, Outside Screw and Yoke

Crane Clamp Gate Valve No. 490½—Brass Mounted, Inside Screw

"You can be sure of one thing—when our plans go through, they will include your Taylor Temperature Control."



TODAY'S BLUEPRINTS *are* TOMORROW'S MILLS

Will they provide for the most efficient and economical temperature control? Let us help you plan for it NOW.

HERE'S an actual case of far-seeing management. A superintendent already has plans on paper to improve the physical layout of his mill. He has decided on needed modern equipment, including Taylor Temperature Control. He is looking ahead to assure higher and more uniform product quality, greater operating efficiency and lower costs. When economic conditions permit, he is ready to turn blueprints into physical assets.

This selection of Taylor Temperature Control is not unusual. Mills in the North and the South have proved that Taylor Control is one of the most profitable things they ever installed. Taylor Automatic Slasher Control, for example, is saving mills thousands of dollars today on comparatively small investments. One installation saved $30,000 the first year on a $10,000 investment. Another saved $11,000 in less than a year on a $4,000 expenditure.

The reason for all this? Taylor Control involves no quick method of using a collection of individual indicating, recording and controlling instruments. It consists, however, of a specially engineered, unified system of instruments built to fit your mill's particular needs and installed under strict supervision. Taylor engineers pioneered in this type of control work, and they know modern mill operation.

Look into Taylor Control Now

It is sound management today to investigate every possible method for making your mill an even more efficiently operating unit. And it is easy to find out just what Taylor Control can do for you—from Slashing to Finishing.

Let a Taylor man survey your present set-up now, even though economic conditions may delay putting more extensive control into operation. Then you'll be ready to profit from it quickly at the right moment. For this help, address the Taylor Sales Offices in Atlanta, Boston, or Toronto, Canada. Or write Taylor Instrument Companies, Rochester, N.Y.

Taylor

Indicating | Recording • Controlling

TEMPERATURE, PRESSURE *and* FLOW INSTRUMENTS

VELVEEN XX insures greater weavability. Warps of unusual smoothness and strength result from sizing with this excellent starch. VELVEEN XX *reduces your warp-end breakage and shedding.* This sums up the opinion of many of America's leading mill men who are consistently using VELVEEN XX STARCH.

VELVEEN XX STARCH

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EST. 1866

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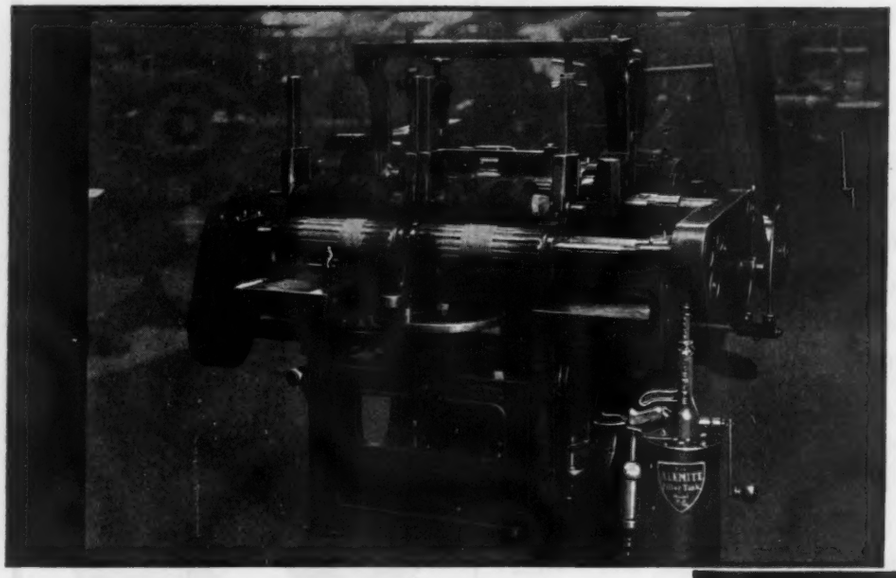
HEADQUARTERS FOR ALL TEXTILE STARCHES, DEXTRINES, GUMS AND TAPIOCA FLOURS

ANOTHER *Saving* WITH ALEMITE!

Job of Lubricating Gill Boxes Cut 75% at Woonsocket Dyeing and Bleaching Co. by Alemite Hydraulic Lubrication System



before..

This machine which combs yarn, stretches it, and dampens it if necessary, has 32 points of lubrication. It was formerly necessary to oil all parts twice daily.

after..

With the installation of an Alemite system, lubrication is necessary only every *second day*, with No. 33 Alemite lubricant.

Let Alemite Lubrication Specialists Submit FREE Recommendations

● This is just one of the hundreds of cases in which textile plants are making substantial new savings with the Alemite Hydraulic Lubrication System. Change-over to this equipment from old lubricating methods is accomplished easily, at a low cost which quickly pays for itself —in greater efficiency, as well as in direct time and material savings.

In ordering any new machine equipment, specify Alemite Hydraulic Lubricating System. The Alemite Corporation cooperates with all important machinery manufacturers in adapting this system to any equipment.

At no cost or obligation to you the services of lubrication specialists from the Alemite laboratories are offered—to analyze your lubrication requirements and make free recommendations for changes which will cut your costs and increase your production efficiency. Savings and replacement of parts alone is often enough to pay a generous dividend on the investment in modern scientific lubrication. For free consultation service just mail the coupon herewith.

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NRA CODE

With no cost or obligation to us, we are willing to have an analysis made by an Alemite lubrication specialist to learn if we, too, can make substantial savings in labor, material, and part replacements by improved lubrication methods.

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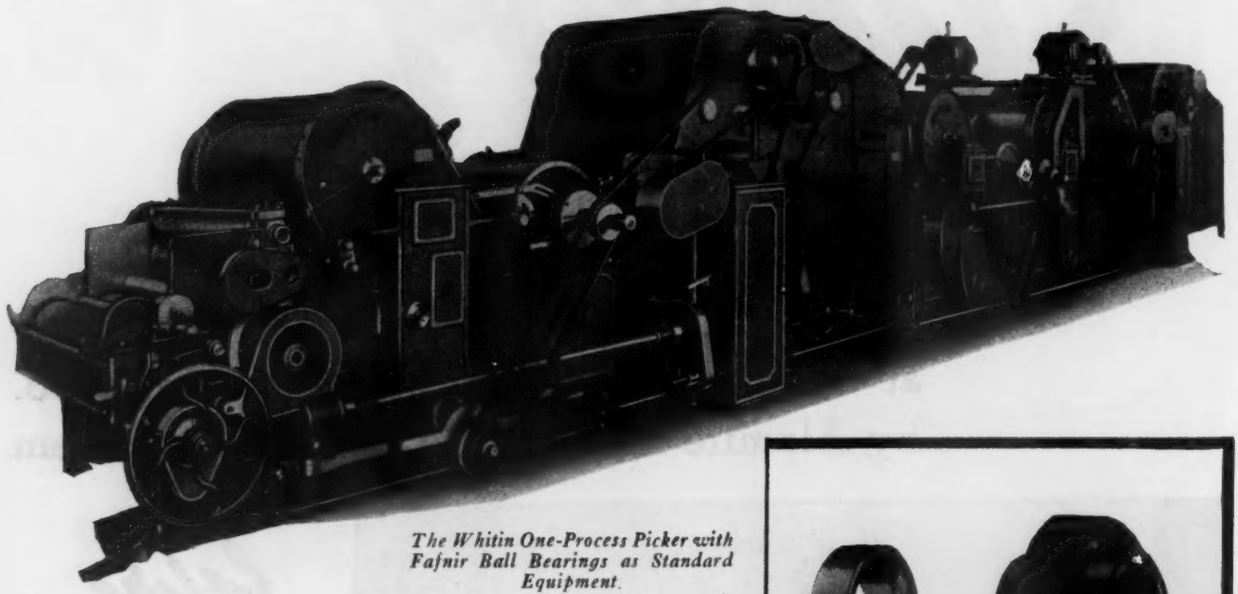
*City*_____ *State*_____

WHITIN ONE-PROCESS PICKER *picks* FAFNIR BALL BEARINGS



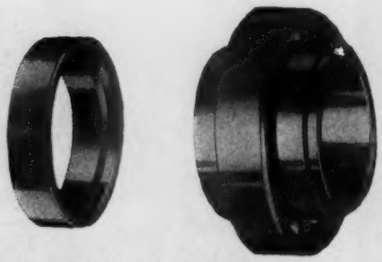
The Whitin One-Process Picker with Fafnir Ball Bearings as Standard Equipment.

5 distinct types of Fafnirs are standard equipment on this Whitin machine. On the Beaters, Fans, Side Shafts, Feeder Pin Apron Shaft, Evener Cones, Swing Rakes, Helical Gear Housings and Drive Shafts you will find the ideal type of Fafnir Ball Bearings for each application. Single Row, Double Row, Thrust, Rigid Wide Inner Ring and Self-Aligning Wide Inner Ring Ball Bearing — each contributes dependable low-cost performance.

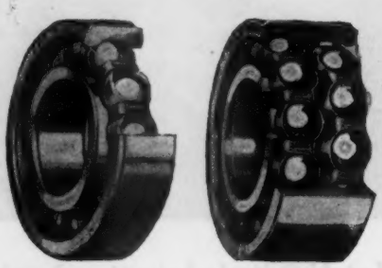
Whitin is one of the many Textile Machinery builders that know from their own experience and the experience of users, how truly efficient machines remain when equipped with Fafnir Ball Bearings. Such results are the product not only of the finest workmanship and design which characterize Fafnirs, but also the completeness of the line, assuring the ideal anti-friction bearing for each and every service.

To assure low-cost machine performance and to retain this over long periods of time, builders and users alike find that it pays to specify "Fafnir Ball Bearings." THE FAFNIR BEARING CO., *New Britain, Conn. Representatives also at*: Atlanta, Ga. . . . Houston, Tex. . . . Charlotte, N. C. . . . Boston, Mass. . . . Dallas, Tex. . . . Birmingham, Alabama.

FAFNIR
BALL BEARINGS



Fafnir Wide Inner Ring with Sleeve-Locking Collar.

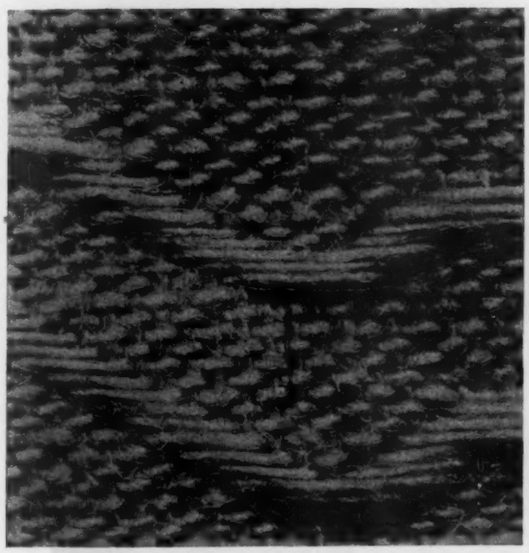


Single Row Radial — Double Row

Thrust Bearing

WARP BREAKAGE causes 45% of all loom stoppages

...You can greatly reduce this loss by *using* HOUGHTON'S WARP CONDITIONER



Less hairiness in the warp, a better bond and better condition of warp sizing, with definite operating economy, when Houghton's Warp Conditioner is used.

Three mill foremen told us that warp breakage caused 45% of their loom stoppages. And later each of them admitted that by the use of Houghton's Warp Conditioner that costly item had been greatly lessened.

You, too, will have that experience if you try Houghton's Warp Conditioner, plus the practical knowledge of our textile experts and our Research staff which is at your command.

You will find that this product has remarkable penetrating and lubricating properties, that it provides increased single-end strength, that it reduces fly, chafing and shedding in the loom—in short, that it insures good weavability.

For further details, ask for the Houghton Man, and send for the booklet offered below.

THE HOUGHTON LINE includes:
Cottonlubric
Silklubric
Raylubric
Lanolubric
Warp Conditioners
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Sulfole
Houghton's Aids
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Sta-Put Lubricants
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Chicago—PHILADELPHIA—Detroit
Southern District Office—First National Bank Bldg., Charlotte, N. C.

Send this to 240 W. Somerset St., Philadelphia, for full information.

☐ Please send your book "Houghton on Sizing Products."
☐ Have your representative call.

Name .....
Company .....
Street .....
City & State .....

INVESTMENT

The first time you buy Cocheco Belting you take our word for its quality . . . Years later you will *know* how soundly you invested

Before making an investment in belting read our BOOK ON BELTS . . . IT is a treatise on quality, how to determine it and why to insist on it . . . It has been sent all over the world. May we send you a copy?

By plunging it is possible to make big profits immediately. It is also possible to lose a fortune overnight.

Scientific plant management doesn't operate the Wall Street way when it plays its money on equipment. It looks at the cost but that cost is something more than the initial outlay. It looks to the future just as a man does in planning an income for later years. "What will it cost after we buy it, how soon shall we have to replace it with some other make?" are questions that the management of today's modern plants wants answered when it is ready to buy.

We have always striven to sell Cocheco Belting on this basis. You may buy belting for less and pocket the difference but the chances are it will cost you more in the long run. Don't gamble. Insist on the same kind of quality you put into your own product. Plan plant economy for tomorrow in buying today.

I. B. WILLIAMS & SONS, DOVER, NEW HAMPSHIRE

NEW YORK PHILADELPHIA DETROIT CHICAGO GREENVILLE, S. C.

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"GARDINOL" is distinctive. It is the modern processing agent. Has many properties not possessed by other types of processing agents. These "Gardinol" products and their methods of production are protected against duplication by U. S. Government and foreign patents. "Gardinol" WA—CA and LS are covered by U. S. patent numbers 1968793, 1968794, 1968795, 1968796 and 1968797. Other patents applied for.

Claims are made that other processing materials are like "Gardinol"—give the same results. But remember they are not "Gardinol" products, properties of which have been proved of value in producing a high standard of quality textile processing.

You will find it to your advantage to use "Gardinol" in helping to obtain better quality finishing... to help solve your processing difficulties. One of the representatives of the sales agents of the Gardinol Corporation will be glad to help you.

GARDINOL*

REG. U. S. PAT. OFF.

* GARDINOL WA
GARDINOL CA
GARDINOL LS
(Patented)

"Gardinol" is the registered trademark used by the Gardinol Corporation to designate its sulfated, higher alcohols

GARDINOL CORPORATION—General Offices, Wilmington, Delaware

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Use

GRASSELLI

formic acid

85% and 90% Commercial

ALWAYS UNIFORM

in Quality and Crystal Clearness

● There will never be any danger of tendering delicate fabrics when the formic acid used in the dye bath is GRASSELLI GRADE. The careful, accurate chemical control used in its production insures an unvarying uniformity in quality, free from sulphates and chlorides. Its crystal clearness remains the same, never darkening when exposed to the light.

Although it is always mild and safe, GRASSELLI Formic Acid has the faculty of completely exhausting the dye. Being both an acid and aldehyde, it has properties not obtainable with other exhaust agents—producing more brilliant colors in dyed fabrics, with no streaky or cloudy effects, and always level colors even in cross dyeing.

Any Grasselli branch can supply you quickly.

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Founded 1839 INCORPORATED **Cleveland, Ohio**

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Lactic Acid
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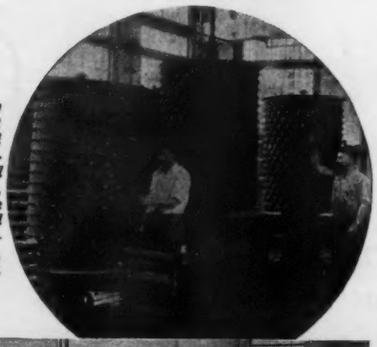
Sulphate of Alumina
Sulphate of Soda, Anhydrous
Sulphite of Soda
Sulphide of Soda
Sulphuric Acid
Tri-Sodium Phosphate

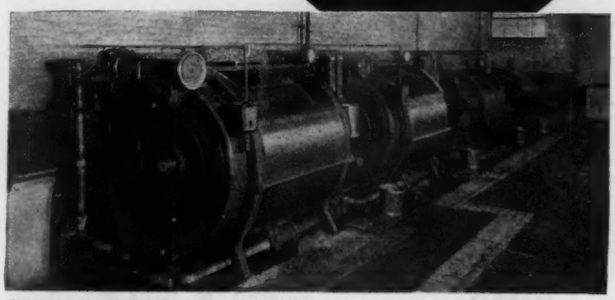
GRASSELLI GRADE

A Standard Held High for 95 Years

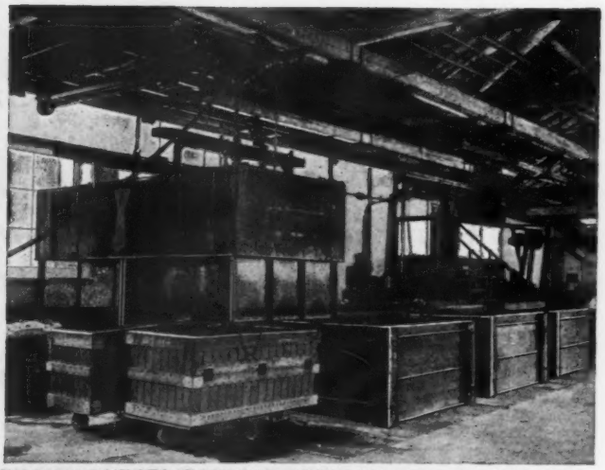
Dye Plants of every type prove value of **MONEL METAL**



PACKAGE DYEING—View of package dyeing equipment at Thies Dyeing Mills, Inc. Monel Metal is used here for the package spindles. The Larson Tool & Stamping Co., Attleboro, Mass., are specialists in the manufacture of Monel Metal spindles for every type of package dyeing... yarns, roving, slubbing... as well as for tinting.



HOSIERY DYEING—Monel Metal "Super" dyeing machines, rotary type, for hosiery dyeing. Mfd. by The American Laundry Machinery Co., Cincinnati, O.



WOOLEN RAW STOCK DYEING—All-Monel Metal cages for dyeing woolen raw stock. Manufactured by Hussong-Walker-Davis Company, Philadelphia, Pa.

SKEIN DYEING—Installation of a battery of the Smith-Drum Monel Metal skein dyeing machines. Monel Metal for the tank, splash back, guard, yarn tubes and yarn rotating members is standard construction. Built by Smith, Drum & Company, Philadelphia, Pa.

LEADING dyehouses standardize on Monel Metal equipment; for cotton, silks, rayons, woolen raw stock and woolen carpet yarn—no matter what method is followed: raw stock, package, skein, piece goods or hosiery dyeing; and in such processes as direct dyeing, vat colors, sulphur colors, basic shades used in acid baths and acid colors; or for peroxide bleaching or stripping with hydrosulphite solutions.

Monel Metal absorbs no liquors and is readily and rapidly cleaned. It is rust-proof, resistant to corrosion and free from splinters and rough surfaces.

For piece goods dyeing equipment and for peroxide bleaching kiers, where large tanks are required, Nickel-Clad Steel is an economical and highly satisfactory material of construction.

Send for consolidated volume of "Dyed in the Truth"—contains the experience of 68 dye plant operators using Monel Metal equipment for practically every type of dyeing and bleaching. Also available on request: *"The Use of Monel Metal and Nickel in Processing Cotton, Silk and Rayon,"* and *"Modernizing the Dyehouse."* Address

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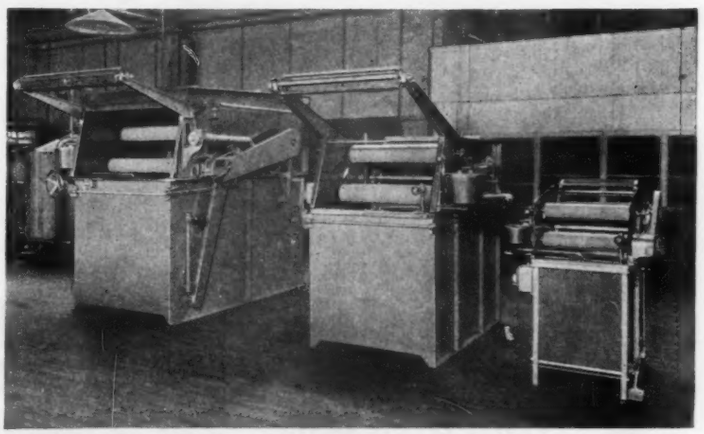

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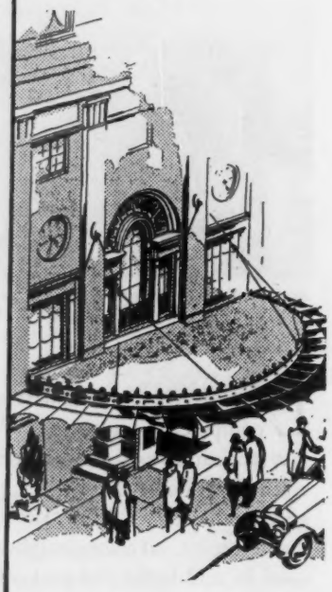

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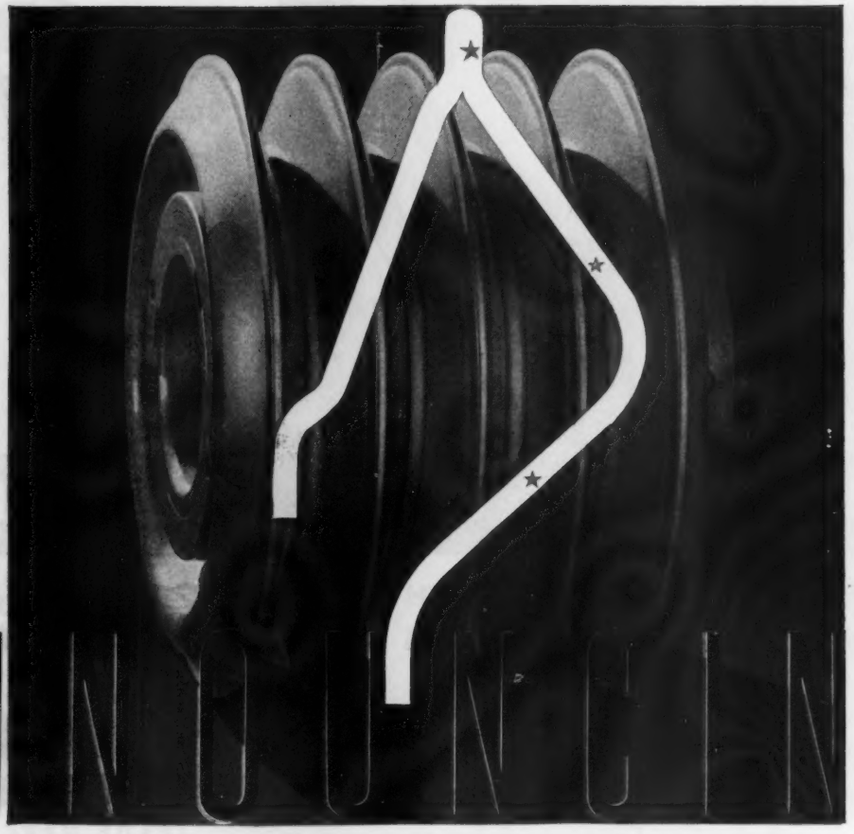

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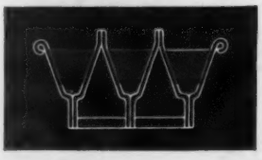
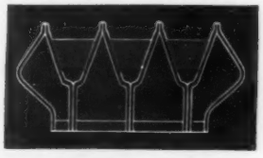
Former Design: cross-section showing unsupported outside plate.



New Duro-Brace Design: cross-section showing outside plate braced by a convex reinforcing steel plate.



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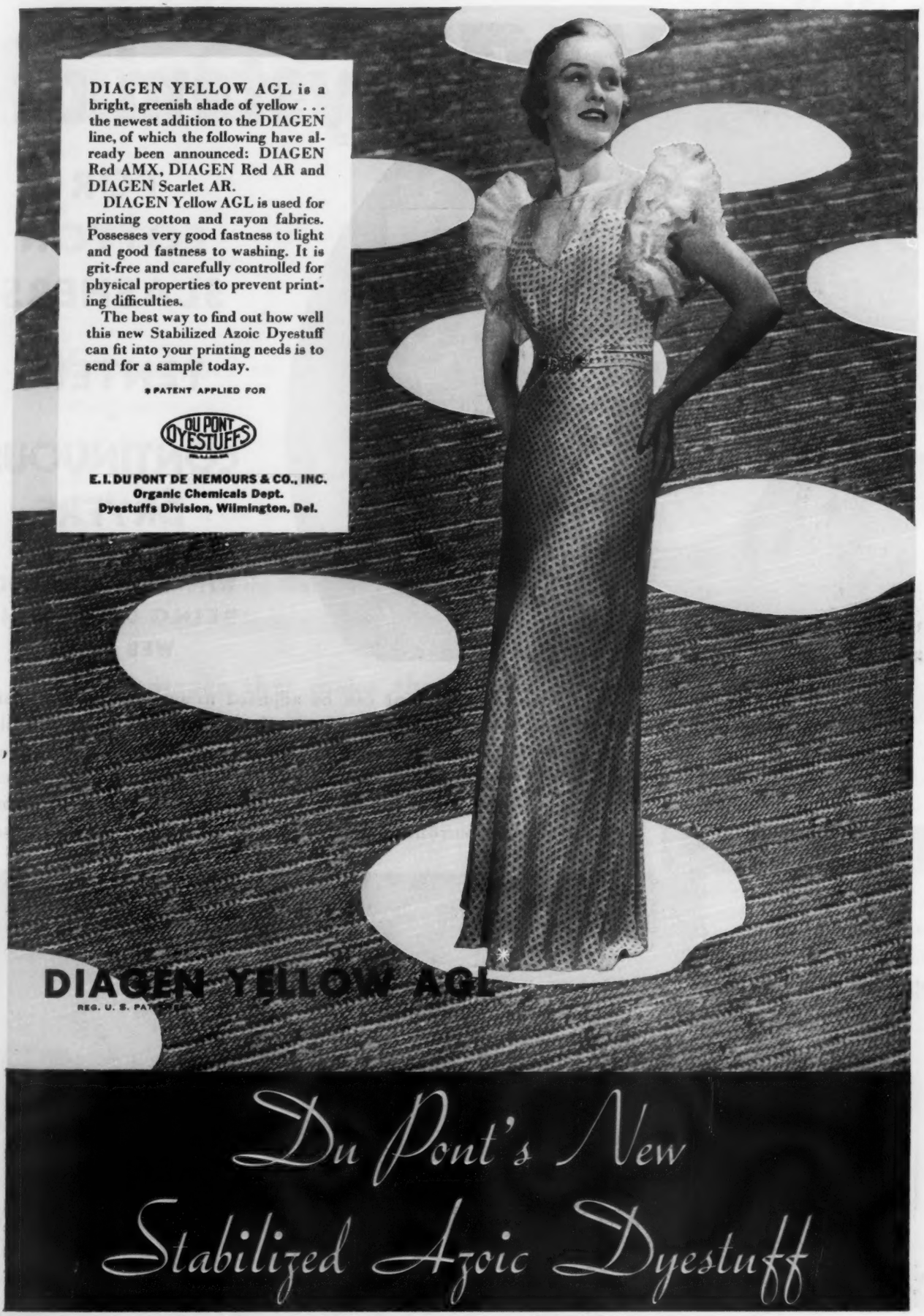
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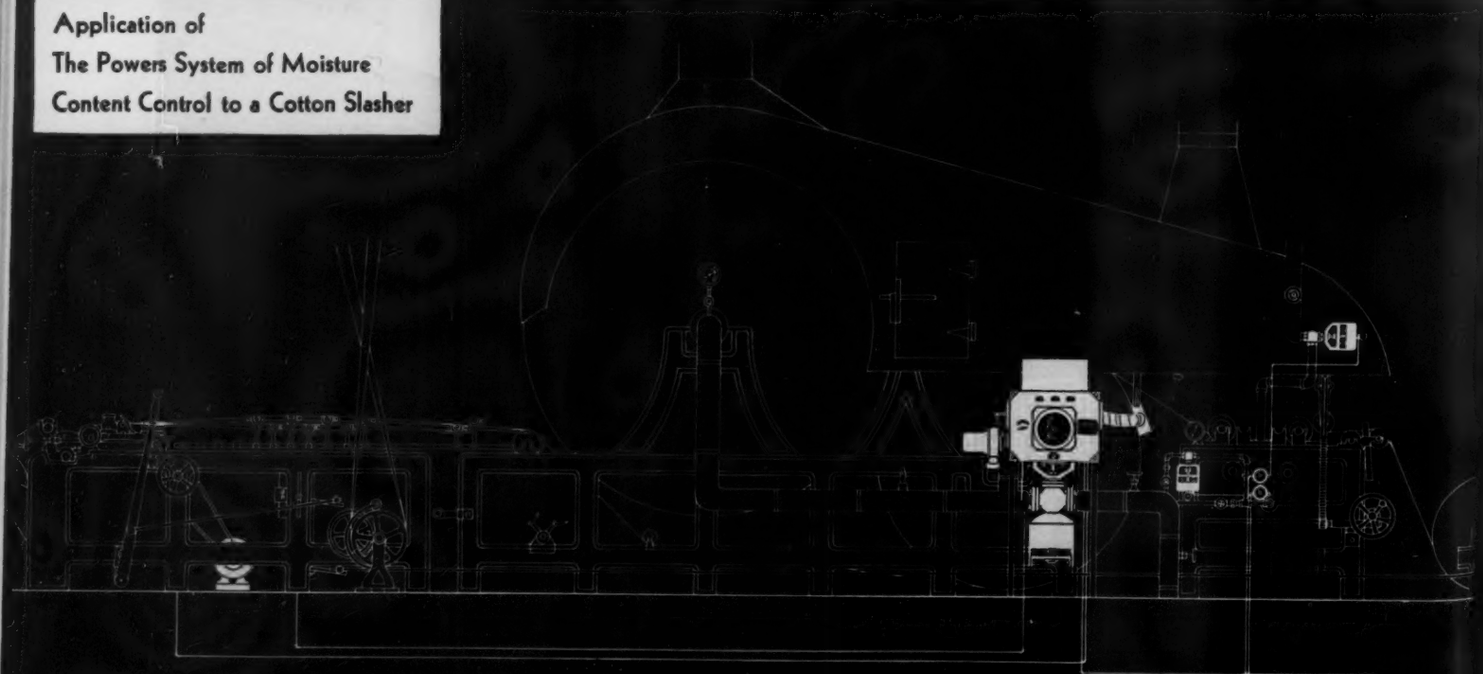
Application of
The Powers System of Moisture
Content Control to a Cotton Slasher



Moisture Content Control

Combines automatic regulation of SPEED as well as Heat

WHEN applied to Cotton Slashers the Powers System of Moisture Content Control automatically regulates size cooking and storage kettles, size box temperature, the size level, and provides closer control of the steam flow than heretofore obtained with other systems. In addition to this, it automatically ascertains and regulates the correct SPEED of the slasher and compensates for fluctuating atmospheric conditions in the slasher room, resulting in the closest possible control of the condition and moisture content of the warp.

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2. **Increased Production in Slasher Department.** Warps formerly run at ½ speed can be run at full speed with Powers Control. At all times it automatically maintains the production of the slasher at maximum speed as compared with present conditions which provide for fixed operating speeds and therefore limited production.

3. **Sizeable Steam Savings.** Light warps running at 8 or 9 lbs. pressure under hand control in one mill were run at 1 lb. steam pressure with Powers Control and at top speed. The amount of steam used is proportionate to the amount of warp properly dried.

4. The satisfaction of knowing definitley that each warp leaving the slasher room contains the exact percentage of moisture in accordance with predetermined schedules. Errors in judgment of different operators on different shifts are eliminated by the mechanical accuracy of Powers Moisture Content Control.

5. A record of each day's run is furnished by the indicating-recorder.

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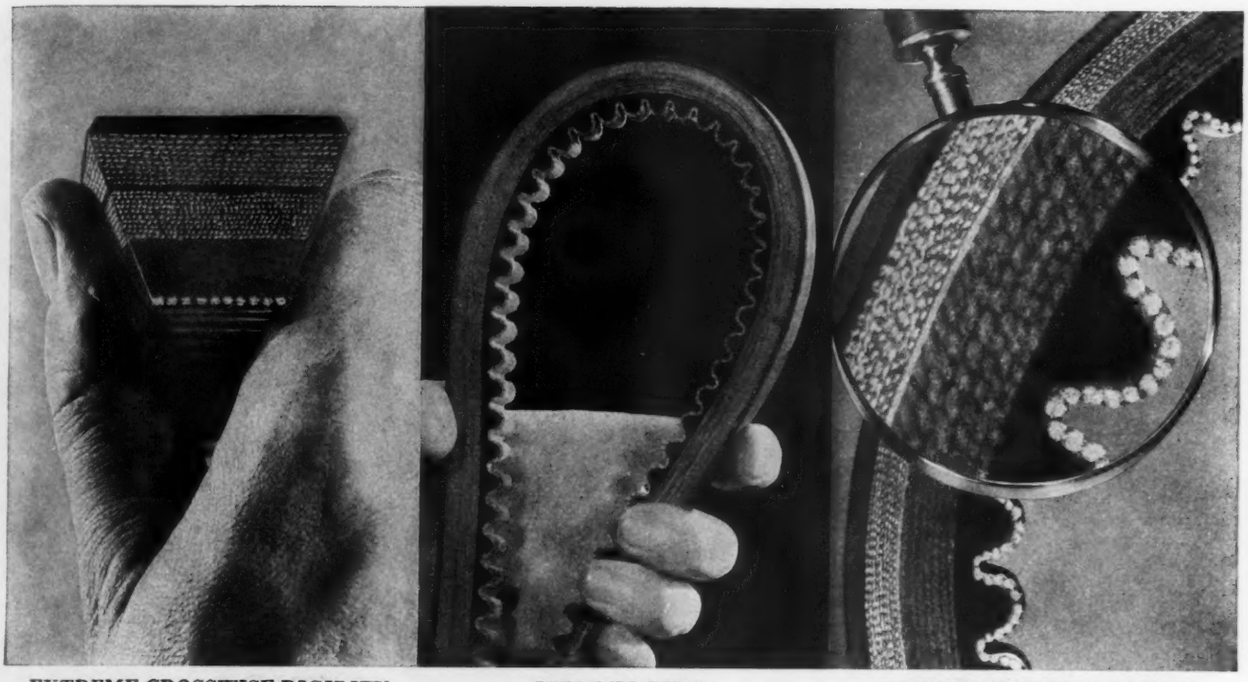


EXTREME CROSSWISE RIGIDITY
No other V-Belt combines such positive crosswise rigidity with such extreme flexibility.

BUILT TO BEND
See how the "cogs" take up the compression on the inner surface of the belt.

GREATER GRIPPING POWER
Sides die-cut—not molded—with raw edge contact surface, give greater gripping power with less tension.

COMPARE

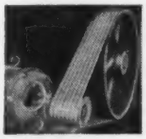
THE DAYTON COG-BELT WITH ANY OTHER V-BELT IN VITAL PRINCIPLES OF CONSTRUCTION

Considering how it is made and what it does, the Dayton Cog-Belt is without a rival in the V-Belt field. Back of it are advanced principles of design and construction which result in superior performance, longer life, and lower operating and maintenance cost.

First, it is the only V-Belt specifically *"built to bend."* Its patented cog and laminated construction provide far greater flexibility . . . enable it to flex easily around even the smallest pulley without buckling or rippling.

And while it is more flexible, its laminated construction and patented reinforcement give it *extreme crosswise rigidity.* There's no squashing in the pulley groove . . . no distortion nor twisting. No other V-Belt combines such extreme flexibility with such positive crosswise rigidity.

Added to these important qualities are its *die-cut sides.* The raw edges of these die-cut sides form the driving surface of the belt . . . one of the reasons for Dayton Cog-Belt's powerful leech-like grip in the pulley groove. There's less slipping and sliding, even with quick starts and stops . . . less loss of power . . . less vibration . . . less tension . . . less wear on bearings.



Even a hurried comparison will reveal these advantages of the Dayton Cog-Belt. But there are many more reasons why it is setting new standards of performance in hundreds of industrial plants. Let us show you how it can save money for you in many ways; and especially why Dayton Cog-Belt Drives are the most efficient drives in the world today. Write us.

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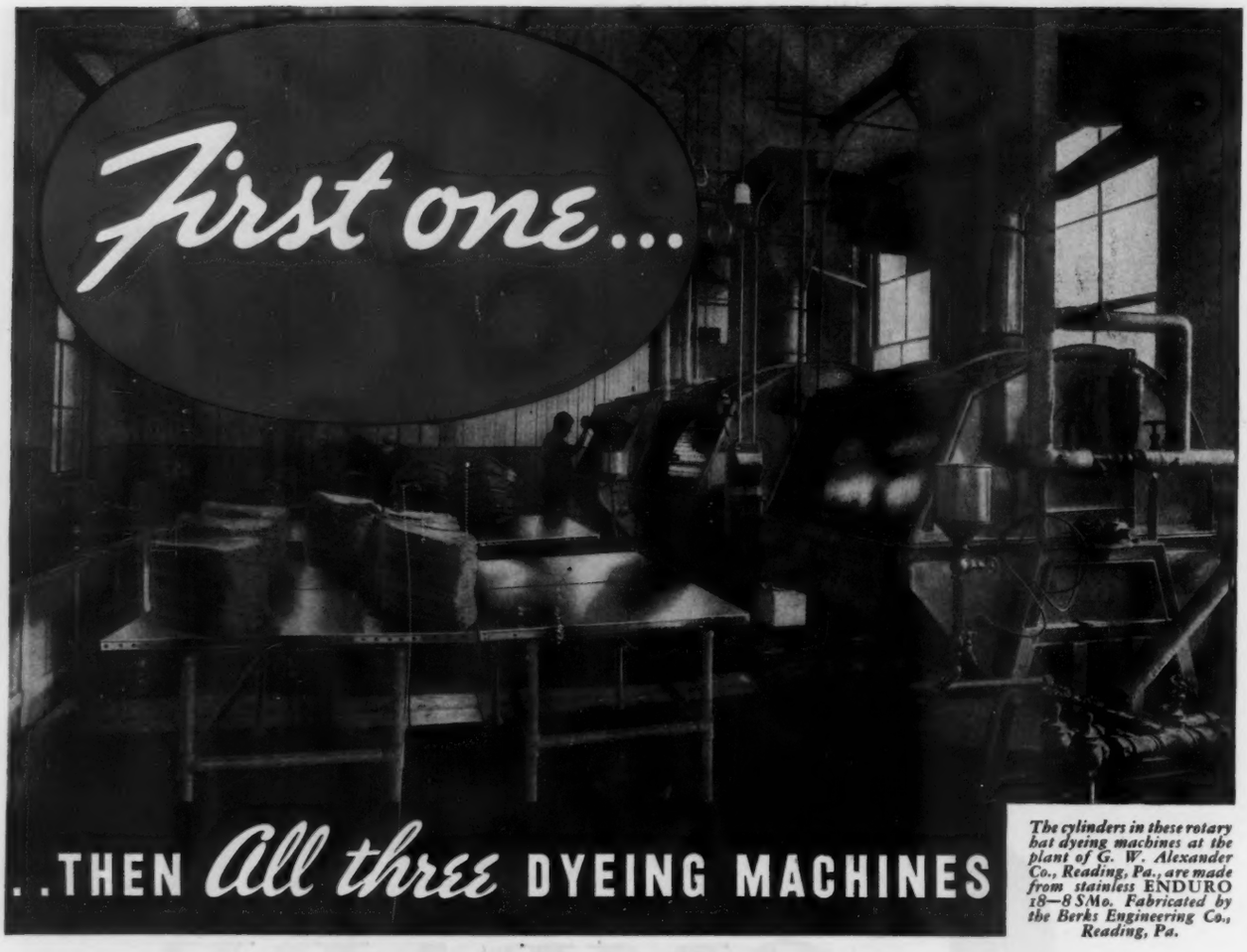

The cylinders in these rotary hat dyeing machines at the plant of G. W. Alexander Co., Reading, Pa., are made from stainless ENDURO *18—8 SMo. Fabricated by the Berks Engineering Co., Reading, Pa.*

WERE EQUIPPED WITH CYLINDERS OF STAINLESS ENDURO

Here's more evidence that will interest every textile engineer having trouble with corrosion or discoloration in dye machines! • The engineers at the G. W. Alexander Co., Reading, Pa., installed a perforated cylinder made from stainless ENDURO in one of their machines sixteen months ago. It was watched carefully. After a full year of steady operation it was found to be in the same condition as the day installed. No corrosion . . . no discoloration. • Today, the three machines have ENDURO cylinders. And work tables have been installed, made from ENDURO, too. • ENDURO has proved its value in dyehouse service. The facts are available. Write Republic for full data.

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REPUBLIC STEEL CORPORATION
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Vol. 98

COTTON

No. 12

December, 1934

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director
ROBERT W. PHILIP, Editor

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Vol. 98
No. 12

COTTON

December,
1934

Whither Are We Going?

An earnest discussion, by a textile manufacturer, of the textile labor problems induced by Section 7-A, and the changes needed . .

By Michael Welsh *

THE past failure of many textile manufacturers to realize that reckless production programs, cut-throat competition, extremely low wages and long work hours would eventually lead to an intolerable situation certainly left the industry open to hostile attacks by its own individual enemies and wholesale denunciation and damnation by anti-American groups. The fact that industry was handicapped insofar as concerted action was concerned by the antiquated and obsolete Sherman anti-trust law is not overlooked; but the existence of that impeding law did not completely shackle the industry in attempting to solve its acute problems.

It is true that the creation of the Cotton-Textile Institute was a noble gesture in the right direction, yet everyone familiar with the situation realizes how crippled was that body in its earlier earnest attempts to prize the industry out of the mud. Had all mill executives co-operated with the Institute as some of them did the situation would have been greatly improved. It is likewise safe to say that those mills which were in the main the chief obstacles to effectiveness on the part of the Institute were those which attempted to gain competitive advantages through lower wages, longer hours and unsound sales policies before the Institute came into being. It is believed that some of that group are still militating against the welfare of the industry as a whole by intentionally "chiseling" under the textile code in attempting to secure unfair trade advantages, and they are therefore furnishing ammunition for the guns of those who are eager to use the slightest misstep on the part of an individual to fire a broadside into the entire industry.

The history of the actual formation and adoption of the textile code is familiar to members of the industry. It will not be given here. But very significant is the fact that the industry reversed its form insofar as innovations are concerned and voluntarily took the leadership in code forming and code accepting. It is feared that the industry in its broadened outlook and in its eagerness to co-operate with the president and his recovery program made a serious, far-reaching mistake. The textile industry was far too acquiescent in accepting certain provisions of its code. It is realized, of course, that the time element entered into the situation and that considerable pressure was being brought to bear by outside influences which were far more powerful than ever before because of the acute national economic crisis; but it is the opinion of the writer that more deliberation and a firmer stand by the industry during the code formation period would have spared not only all industry but the nation as a whole much trouble, bitterness, strife and bloodshed.

(*) The pen name of a southern textile executive; a self-styled "irrevocable conservative on American principles, who advocates sane economic planning to harmonize the industrial situation with changing conditions without weakening the sacred tenets of our democracy."

Copies of his previous articles are available upon request.

The Background of this Article

THE writer of this article, in a series in COTTON several years ago—"Putting the Textile House in Order"—first discussed problems of the individual plant; policies and systems related to machinery: waste, cost, employing, employee training and accident prevention were discussed . . . As time moved on, and the imminence of an industrial crisis involving personal and property rights was apparent, his discussions changed to considerations of the industry as a whole . . . A serious attempt was made in his articles to direct attention to the significance of existing economic ills . . . As conditions grew worse, the writer, several months before the passage of NRA (in February 1932 COTTON to be specific), screwed up enough courage to desert a customary conservatism and suggest a plan for unified industrial self-regulation and control . . . It specifically included controlled production, minimum wages and maximum hours . . .

The suggestions were offered as food for thought . . . The writer little felt his article would accomplish more than that as a result—nor does he now claim credit—in an industry with a reputation for orthodoxy . . . But along came NRA . . . The textile industry, renowned for its conservatism, distinguished itself by helping to create and accepting the first code.

Subsequent developments have created the subject of this article . . . We believe it fairly states the case . . . While much of it is familiar to textile executives, it contains many pregnant comments and suggestions.

Yes, We Mean 7-A

It is not difficult to guess that we are referring to the notorious Section 7-A. There is no question but that this section has become an increasing bone of contention. It has undermined the entire nation with a high explosive and there has been no dearth of

hands with matches ready to light fuses.

Section 7-A not only is extremely vague, but is also very inadequate and unfair. Nothing with such far-reaching potentialities that has ever emanated from our national government or carried its seal of sanction can rival Section 7-A in its indefiniteness and its inequalities. Despite the fact that prominent figures in the administration have in the past inferred that the famous section needs no interpretation, time and experience have proved that it is just about as clear as mud; and it is believed by many that some of those high up in the affairs of the nation now realize that Section 7-A in its present state is capable of germinating disaster not only for the industries which might be sucked into its controversial throes but also for our democratic form of government, itself.

Southern Textiles Already Had Collective Bargaining

Collective bargaining, that so-called Utopia of industrial relations, furnished the reason or excuse for Section 7-A. From intimate observations of the textile industry it is honestly believed that the results collective bargaining are supposed to produce have been more evident in plants in which there were no thoughts of formal representation on the part of the employees before the code; and in those mills in which the workers have paid no attention whatsoever to the provisions of Section 7-A since the code came into being. Furthermore, it would not be difficult to point out plants in which the relationship between employee and employer was ideal prior to the time when the workers were led by all types of artful methods including coercion (if you please) to believe that they had to become a part of an organized group; whereas since then the relationship has become practically intolerable. There has been nothing whatsoever to recompense any one connected with the plants for that most unfavorable and disagreeable change. Trust, square dealing and friendship have been replaced by suspicion, treachery and enmity.

It's not too late to change . . .

Having heard that this Section 7-A has been referred to as the American "Bill of Rights," we have decided, after due deliberation, that if it is a bill of rights, the "bill" is intended for employees to pay and the "rights" go to organizers and those from whom they receive their orders. There is no question but that the leaders of organized labor have attempted and are attempting to use Section 7-A as a most powerful tool to force all workers in this nation under their complete domination. A nation-wide closed shop system is their goal (they do not deny it); and Section 7-A in its present form most certainly gives them unprecedented governmental assistance in promoting their cause.

We would like to believe that those who were responsible for the final drafting of Section 7-A were so unfamiliar with the organized labor situation as not to realize that it would be used as a tool to force unionization upon employees irrespective of their desires. But it is now hardly possible to imagine that anyone familiar with what has taken place during the past year is so blind as not to see that that is just what has happened or so short-sighted as to believe that unless this section is modified and zealous union leaders are checked they will carry their ruthless campaign under feigned government sanction until a bloody revolution and an overthrow of the Government will be the consequence.

Union Contract in South Short-Lived

It is not believed that anyone can question that a nationwide closed shop system would put more power in the hands of a few union leaders than has ever been possessed by any individual or group in this country since the founding of our present government. The money collection ability of union leaders through dues and special assessments would be without parallel in this nation. A study of some of the closed shop contracts proposed by organized labor will be very convincing in this respect.

One such closed shop contract was accepted by a small mill in the South after its employees had become one hundred per cent unionized. It was agreed that no person could work in that mill unless he or she was a union member in good standing. In other words, in order to hold their jobs every employee of that plant, according to the agreement, would have to pay his dues and observe all union rules. Every worker would be forced to pay financial homage in the form of periodic dues and mental and spiritual homage in the form of complete subjection to the will of union executives many miles away. Included in the agreement was the "check off" system whereby the mill was to collect the dues for the union from its employees' wages before they could receive their pay. That naturally meant that the union was to get its dues before the employees could buy bread and meat for their families or pay for what they had already consumed. It meant that the union came before medical attention for the sick, before school books for the children and before the church.

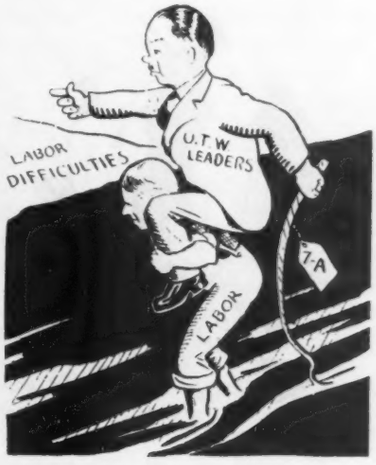
Fortunately in a very short time after this agreement went into effect the employees realized what had actually happened, repudiated the union, gave up their local charter and asked their employer to cancel the agreement. Confidence was also expressed in their employer, and the employees declared that they were capable of handling their own affairs without the assistance of outsiders.

Luckily that group of employees were able to relinquish the union. Just how successful would they

have been in cutting loose if the union had previously secured complete closed shop control of all plants in that section? There is little doubt but that force and intimidation in one form or another would have been used to hold the workers under strict union domination.

It Must Be Modified!

A modification of Section 7-A is imperative. It fosters everything but industrial democracy. It favors an autocracy from without the true industrial realm. It acts contrariwise to its supposed intent. Employers are enjoined from in any way using any influence whatsoever with their own employees in regard to employee representation; and yet rank outsiders are permitted, yea, even encouraged, to use any method which suits their fancy to sell to or force upon employees an organized union as their sole agent of representation. High pressure salesmanship, distorted facts, half truths, falsehoods, shrewd deception, intimidation and even force have been used by these organizers in their aggressive campaigns to secure members. In the face of such an unbalanced situation, with the hands of employers tied and with little effort on the part of others to help industrial employees to secure a clear perspective and act in accordance with their own desires, the fact that organized labor has made such little headway is really amazing. It speaks well for the mental caliber of the average American worker.



The Old Man of the Sea—with a whip . . . . . .

There is little doubt but that disappointment over the progress being made by the United Textile Workers Union in its membership operations was to a great extent responsible for the more militant attempt to gain control over textile employees as their sole representatives—the recent textile strike. So recent is that strike it is unnecessary to recount the methods used in closing down and in attempting to close down mills and in trying to force recognition of the union as the sole bargaining agent of all textile employees. Although union leaders at first attempted a great deception by citing numerous reasons for calling the strike, before many days had passed they let it be known that their real purpose was to win the right to represent all textile workers in the United States.

"We Won"— What?

Even though certain committee changes, etc., were made according to the recommendations of the Winant Board, the strike was an absolute failure. None of the demands of the union was approved. But the most significant and discouraging aspect of the situation is that neither the Winant Board nor President Roosevelt has ever mentioned the atrocities of the union during the strike. Those organized mass deeds of violence were nothing short of insurrection or rebellion against constituted authority and law and order; and certainly they deserved vigorous condemnation by the Administration.

It would indeed be foolish to believe that those union leaders are through. Their lust for dues and their craving for power are far too great to permit them to be passive. Even as these words are written they are planning another vigorous offensive. If that one fails, they will plan another and another. They have nothing at stake. With everything to gain and nothing to lose why should they quit? With Section 7-A giving them a free rein; with administration silence as to their past deeds of violence and insurrection giving them a feeling of immunity; and with no legal or moral responsibility as an organization giving them freedom of action, how can we expect anything but trouble from the United Textile Workers of America?

The question arises: what can be done? Much must be done, and it is high time that the seriousness of the situation was brought to the attention of the public. If and when Mr. Average American Citizen realizes that artful organized labor leaders are attempting to gnaw away the very vitals of our sacred government he will don his battle armor and prepare for combat. To bring about that realization is no small task. Unfortunately a vast portion of our publications deem it superb journalism to display a radical trend. Too many prefer to publish the vituperations of ranting radicals instead of the sane expositions of constructive citizens.

Yes, the textile industry, other industries and constructive, conservative America are in crying need of real unbiased publicity avenues. It should be remembered that discussions appearing in trade publications are not read by the general public and are therefore not very effective in enlightening those not directly connected with the trades represented. The recent article of Garet Garrett in *The Saturday Evening Post* entitled "Section 7-A at Sheboygan" is a splendid example of the type of publicity so badly needed.

The Right to Work

Leaving the publicity needs of industry, an attempt will be made to point out a few other imperative needs for the protection of textile employees as well as employers and for the general welfare of the United States. In the first place, if we must have Section 7-A, it should be modified. It should be so constructed and enforced as to positively guarantee employees absolute freedom as individuals in conducting their own affairs. If employers should be prohibited from influencing their employees, then they both should, by all means, be safeguarded against the intimidation, the deception and the high pressure salesmanship of agitators and organizers.

Every worker should have his individual rights guaranteed. No room for doubt should be left as to

whether or not he has the right to deal for himself regardless of how many or how few of his fellow workers belong to a union or any other organization. The provisions of the section should be made immune to possible partisan and prejudicial interpretations. In other words, if fair industrial relations need a Section 7-A, that section needs to be fair. It should, as nearly as is humanly possible, be made to conform with the spirit and letter of our Constitution. Manufacturers should make a definite unyielding stand for a strictly impartial reconstruction of Section 7-A.

The plan of settlement in the recent A. & P. case lends much encouragement. It is understood that under the proposal and agreement, coercing by union organizers is barred just as stringently as that by employers. This is believed to be the very first time Federal recognition has been taken of the militant practices of unions. Commenting upon the attitude of the National Labor Relations Board in this case, David Lawrence, noted political writer, denounced previous actions of Federal officials who "encourage union leaders at times to take a course of action that is plainly illegal," and he added:

Get rid of the bad ones . . .

"When it is all over, it is found that the National Labor Relations Board grants in a specific agreement the very points raised originally, namely, that employees in unionizing, just as employers must refrain from coercing their employees to refrain from joining unions."

It is not unlikely that many administration officials, who in the beginning were sympathetic to organized labor union leaders and their ambitious programs, are now thoroughly out of patience with them. General Johnson's public denunciation of certain union leaders offers an outstanding example of what happens to a fair minded man's viewpoint when he has had an opportunity to secure first hand information as to organized labor's present-day methods. The trouble is that so few have that opportunity; and due to preconceived ideas, are too ready to greatly discount the reports of union activities and methods which emanate from sources other than those which are known to be friendly to organized labor. Of course, politics are playing and will continue to play a big part with the attitude of a great number of public officials.

The writer does not want to be recorded as being in favor of banning organized labor unions in this nation, for after all this is supposed to be a free country; but he is in favor of making unions, if we are to have them, one hundred per cent responsible for their activities. At present those who guide the destinies of the unions either can or think they can, with absolute impunity, operate under an "anything goes" policy. Occasionally some of their paid henchmen and some of their misguided followers get into trouble; but those upon whose shoulders the responsibility should fall, completely escape all consequences.

Make the Unions Responsible

Certainly employers, who are legally responsible for their acts, should not be put in a position where they are forced to enter into contracts with unions which shun corporate existence and have no legal responsibility for observance of contracts. Recent experiences prove that after unions enter into contracts with mills the union heads feel free to repudiate them; and in such cases, under present conditions, employers have no recourse, legal or otherwise.

Furthermore, it is understood that information relative to the financial status of the unions and their records as to their expenditures are withheld from all but a select few. Those whose dues fill the union tills are without knowledge as to what happens with their money.

It is quite evident that the present status of affairs in respect to organized labor cannot be permitted to remain inviolate. The welfare of employees as well as industrial investments in the United States demand a change and it should be considered the duty of every textile manufacturer to lend his support in the correction of the present far-reaching organized labor situation. A "let somebody else worry about that" attitude on the part of individuals will greatly impair the chances of improving the situation. A definite legislative plan should be immediately developed and so supported as to assure serious consideration of it by the administration and Congress.

The platform of Principles of the Cotton Textile Industry on Industrial Relations recently released by the American Cotton Manufacturers' Association and the National Association of Cotton Manufacturers affords a splendid basis for this proposed legislative plan. All moves to make organized labor truly responsible financially and otherwise for its activities will be met by strong opposition from vociferous organized labor leaders and their powerful lobby in Washington. They will be supplemented by members of Congress who for one reason or another appear to be irrevocably wedded to organized labor. The going will be rough, but it is imperative that the issue be forced and won.

Why Have Both?

If it is to be the Government's function to supervise industrial relations; then it appears that there is less reason than ever for the existence of organizations such as the United Textile Workers. If Uncle Sam's agents are to step in and arbitrate differences between the employees (or an employee) and the employer of a particular plant it appears that the presence of others is superfluous. If the Government fears that employees are either not capable of or are too easily influenced by the employer to properly affiliate so as to represent themselves—then it's up to the Government to render them such assistance as is nec-

essary to enable them to do so.

After all, it should be remembered that the collective bargaining we hear so much about is supposed to be bargaining between the employees of the individual plant and their employer and not between some outsider, whose interest is centered around the payment of union dues, and the employer. In other words, the very fact that representatives of organized labor realize that their salaries and their expenses are dependent upon the payment of union dues by employees automatically causes them to focus their attention upon that feature rather than employee welfare. Dues paying and employee welfare do not go hand in hand.

To go even further, it is sincerely believed that if it were possible so to increase the pay of all textile workers that they could purchase everything purchasable, and so cut their working hours that they wouldn't know what to do with their spare time, and so reduce their work that it would become a real diversion to them, U. T. W. leaders would remonstrate if they were to be deprived of the privilege of forcing the collection of dues from the workers and the right to authoritatively represent them. The creation of ideal conditions for textile workers without domination and dues collecting powers by the U. T. W. leaders would be the very last thing they would like to see happen.

Peace, contentment and happiness among industrial workers is about as distasteful to labor agitators as right living is to Beelzebub himself. Unless they can find or create dissatisfaction and bitterness the ranks of dues-paying subjects become thin indeed.

Our President is asking for industrial peace. Our President should be informed (if he doesn't already know) that what he wants is impossible so long as labor agitators are permitted to roam through industrial America stirring up strife and indulging in all types of deception and trickery in attempting to enlist dues paying members and force the yoke of organized labor autocracy upon the nation.

From the standpoint of industrial peace and of employee welfare, it would be far better and more economical to pension these leaders and agitators and retire them to some distant place to live on the lap of luxury than to permit them to continue their dues- and power-seeking campaigns. Seriously, if that dues element could be permanent eliminated from the industrial relations equation, the problem could soon be satisfactorily solved. If, however, we must have national unions, let them be unions operated by the Government for the employees without cost to them. The writer does not endorse such a proposition but he assuredly favors it in preference to the organized labor set-up of today.

The textile manufacturers voluntarily entered into the textile code agreement. They made a serious mistake by accepting Section 7-A; but that is water that has already passed over the dam. They now face a future. Just what that future will mean to them in the way of a fair deal will rest largely with them. There is no room for a compromise in considering Section 7-A for the future. An irrevocable stand for a satisfactory reconstruction of that section should be taken. Voluntary acceptance of a textile code should be made contingent upon a fair revamping of 7-A.

The tyranny and lawlessness demonstrated by organized labor last September also demands positive legislative treatment. This Nation cannot afford to tolerate even a little bit of that. Public sentiment in textile sections was so well aroused by union directed insurrections during the textile strike that suitable laws to curb them should not be difficult to obtain.

The British Way

This nation can profit well by the experiences of Great Britain. Following a general strike in England in 1926 The British Trade Disputes and Trade Unions Act was passed in 1927. That Act would serve well in this nation. It legalizes strikes and lock-outs, thereby preserving the individual rights of employees and employers, but it bans those union activities which lead to such occurrences as England witnessed on a large scale in 1926; and this country in a less serious way last September.

A summary of that Act is as follows:

"This Act is composed of 8 Sections, the 8th being confined to definition of terms. A summary of the first 7 sections follows:

1. A strike or lock-out is illegal (and it is illegal to commence or support one) if

   (a) the object is other than in furtherance of a trade dispute in the industry in which the strikers or employers locking-out are engaged.
   (b) designed to coerce the Government directly or by inflicting hardship on the community.

   In other words, general or "sympathetic" strikes are prohibited and penalties are provided for volation.

2. Persons refusing to participate in an illegal strike or lock-out shall not be denied the rights or advantages usually accruing to them in trade unions or societies by reason of such refusal.

3. This section declares picketing is illegal if done in such numbers or in such manner that it is likely to intimidate workers or to cause any disturbance. Penalties for violation are provided.

4. It is illegal to require any member of a trade union to make any contribution to a political fund of a trade union unless he has formally notified the union of his willingness to do so.

A separate accounting of political contributions and funds must be kept by the union and reported to the government.

5. With certain minor exceptions, civil servants (i. e., employees of the Crown) are prohibited from being members of any organization whose primary object is to influence wages or working conditions unless the organization is composed solely of Crown employees and has no affiliations with prohibited organization.

6. It is illegal for any public authority (local or other) to make membership or lack of membership in a trade union a condition of employment or a basis for discrimination between employees.

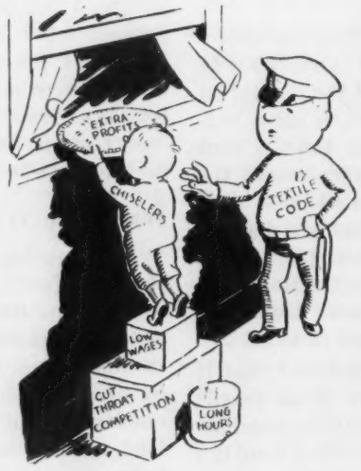
Public authority, national or local, is prohibited from entering into any contract requiring that any person employed by any party to the contract shall or shall not be a member of the trade union. If such a condition is imposed, such condition may void the contract.

Penalties are provided for persons who break a service contract with a public authority with reason to believe that it will cause injury to the community.

7. The Attorney-General, as well as any person having sufficient interest in the relief sought, may obtain an injunction restraining the application of trade union funds in support of an illegal strike."

Operating as much against the welfare of the tex-

tile industry as Section 7-A or anything else are a few manufacturers who have little or no regard for the provisions of the code they have accepted or for fair trade practices which are essential to the stabilization of the industry. They are thorns in the flesh of the industry. The efforts to gain unfair competitive advantages through chiseling will in the end act as a boomerang. Such tactics are extremely shortsighted and eventually lead to trouble. Unfortunately trouble generated by that type of employer spreads and also damages fair, honorable manufacturers. We had some such manufacturers before the code, we have them now and we will probably continue to have them; but it should be publicly known that their deeds and attitudes are not condoned by the reputable manufacturers. In fact they are vigorously condemned. Steps, supported by the industry, should be taken to make these recalcitrant manufacturers conform to agreed practices.



He doesn't deserve the pie . . .

For fear that this rather lengthy discourse may leave the impression that the writer is anti-administration and anti-New Deal, it is well to say that such is not the case. I am on record as advocating many of the provisions of the Recovery Act before it was officially conceived. I have greatly admired the President and sympathized with him in his noble efforts to extricate the nation from its desperate doldrums. However, I recognize that the President is a human being, that he is subject to mistakes and that he has made mistakes. I believe that chief among the weaknesses in the Recovery Administration is too few practical minds and too many theoretical viewpoints. I feel that it is unwise to condemn or repudiate the whole because of objectionable parts; and recommend co-operation where co-operation is justified and a determined stand for changes and improvement where experience has proved they tre needed. Let's not be unmindful of the fact that more than an individual is at stake, more than an industry. The American form of government and all that it stands for is in jeopardy. What this nation needs most of all is good unselfish American citizenship.

5th Annual Meeting of United States Institute for Textile Research, Inc.

That the interpretation of the increasing number of abstruse reports of scientific research in language that would be intelligible by textile executives and technicians has become a vital need of the industry was the opinion expressed by a notable group of scientists and textile men who discussed the subject at the fifth annual meeting of the United States Institute for Textile Research, which was held at the Hotel Pennsylvania, New York City, on November 1. While definite ways and means for providing the industry with this service were not decided upon at this meeting, it seemed to be agreed that it was one that could be best provided by this Institute, provided it received a sufficient increase in moral and financial support of the industry.

Discussion of the subject was opened by Hon. Francis P. Garvan, president of U. S. Institute for Textile Research and of the Chemical Foundation, in his annual address; was defined in formal papers by E. R. Schwarz, associate professor of textile engineering, Massachusetts Institute of Technology, and by Dr. Robert E. Rose, director technical laboratory, E. I. du Pont de Nemours & Co., Wilmington, Del., and president, American Association of Textile Chemists and Colorists. The open discussion was started by Dr. Karl T. Compton, president, Massachusetts Institute of Technology and head of several national research organizations. Among those who followed him were Dr. Charles H. Herty, former president of the American Chemical Society; and Franklin W. Hobbs, chairman, the Textile Foundation; who were guests of the Institute.

The annual report of the Research Committee drew attention to the scientific study of warp sizing of cotton and synthetic fiber yarns that is to be undertaken by the Institute if a sufficient number of those interested in the subject will co-operate in its financing. The research plan has already been placed in the hands of those who took part in the conference on this subject, held last May, and there has already been a gratifying response. At the U. S. Bureau of Standards and Massachusetts Institute of Technology researches are under way on wear-testing, which subject was discussed at a conference held by U. S. Institute last Spring.

In the annual reports Plank No. 6 of the platform of principles of industrial relations, adopted at their recent meetings by the American Cotton Manufacturers Association and the National Association of Cotton Manufacturers was referred to as "the first united public confession of the domestic cotton textile industry that its survival depends upon scientific research and invention." The opinion was also expressed that the sales promotion plans that are now being considered by the wool, the silk and the synthetic fiber industries could not be made completely successful without scientific research. It was taken for granted that the synthetic fiber industry, being an outstanding textile example of fundamental research results scientifically applied and utilizing research as a necessary tool of industry, would not fail to stress these facts in its sales promotion work. "Faced by such competitive publicity it is hardly conceivable that, in the battle of the textile fibers for a share of the consumers' dollars, the silk, the wool and the cotton branches of the industry should fail to make such use of favorable scientific research as is available, nor should fail to make a planned program of scientific research a part of their sales promotion plan."

New members of the Board are: Dr. Robert E. Rose, Director, technical laboratory, E. I. du Pont de Nemours & Co., Wilmington, Del., and president, American Association of Textile Chemists and Colorists; Dr. H. DeWitt Smith, Treas., A. M. Tenney Associates, New York, N. Y., and J. E. Edgerton, Pres., Lebanon Woolen Mills, Lebanon, Tenn.

Industry Developments in November Unspectacular, but Important

Charges of "Discrimination" Main Problem of Strike Aftermath

GRATEFULLY retiring from the conspicuousness of the front page in the public prints, and well content to work quietly and constructively on its own momentous problems, the cotton-textile industry during November assumed a more placid but still troublesome course. The fan-flare and disruption in the wake of Gorman's strike naturally left its scars and its problems. Chief of these were a stubbornly jammed market for textiles, and the necessity of ironing out misunderstandings that naturally arose in connection with the work of the Textile Labor Relations Board. On the whole, however, progress of a substantial nature was made.

The principal duty to which the labor board devoted its efforts was the settling of complaints charging mills with "discrimination" against former workers for alleged strike and other union activities, in manning the mills for resumption of activity following the strike period. Dr. B. M. Squires, director of the board, made it clear that the board and its investigators had no jurisdiction over and would not handle complaints involving workload assignments; there being in prospect special bodies to consider that problem. With reference to discrimination cases, however, the board quite honestly and determinedly assumed as its primary duty, consistent with the President's request, "to put people back to work."

Not fully informed at first as to the circumstances preventing the wholesale compliance with the broad intent of that request, but obviously fair and impartial and ready to learn, the board's education concerning the industry's problems was rapid. On the one hand and, one might say, negatively, it came through more intimate, though perhaps not wholly voluntary contact with Strike Leader Gorman, et al., thus securing a clearer picture of the real aims, methods and actions of the U. T. W. Through contact, on the other hand, with a large number of mill executives whom the board had called to Washington for direct interview concerning complaints against them, the board got an opportunity to understand better the industry's problems and its point of view, and to find, Mr. Gorman notwithstanding, that few if any mill men were equipped with horns, and that they as a whole are a group of honest, fair-minded and unfairly harassed American business men who seriously recognize their responsibilities to their stockholders, their employees, their communities and themselves.

Actions by the board thus far apparently have been confined to conciliation and mediation. Its further policy is as yet unannounced and undemonstrated. Perhaps it will profit from the experience of its predecessor and establish effective and definite procedure that will result in prompt and satisfactory adjustment in an individual case. Such a procedure might well include prompt advice to any individual mill management concerning any complaint lodged against it, and furnishing a mill with the report of the board's investigator assigned to the complaint.

The personnel of the Textile Labor Relations Board was changed by the appointment, on November 20, of Frank P. Douglass, of Oklahoma City, as a member succeeding James A. Mullenbach of Chicago, resigned. Judge W. P. Stacy of North Carolina and Admiral Henry Wiley remain as the other members. The resignation of Dr. Squires as executive director of the board was announced soon afterward, and Mr. Douglass immediately assumed the duties of that office, succeeding Dr. Squires.

Board Hears Discrimination Against Clinton, S. C., and Atlanta, Ga., Mills

In late November, the Textile Labor Relations Board conducted its first hearings on charges of alleged discrimination on the part of mills in manning the mills following the strike. Certain union leaders charged their former employers with refusing them work because of their union affiliations. The cases heard in November were against the Lydia and Clinton Cotton Mills, of Clinton, S. C., and the Atlanta Woolen Mills, of Atlanta, Ga. W. J. Bailey, representing the two Clinton mills as president, and Vaughn Nixon, president of the Atlanta company, explained to the board their procedure in resuming operations, that of hiring those necessary to operate the plants on the short-time schedules necessary, and of placing on a list to be called as needed the names of other former employees whose work might be acceptable as their services might be required in the future.

Personnel of Boards to Study Work Assignments Announced

On November 30, the personnel of the boards to determine if possible the work assignments for employees in the various divisions of the textile industry was announced. These boards, called for in the Winant report, are to report their findings to the Textile Labor Board. Meanwhile, according to the Winant report, no employer can increase the existing workload (effort) until February 1, 1935. The boards are to report before January 1. William A. Mitchell, formerly agent, Massachusetts Cotton Mills, Lowell, Mass., and Houston (Texas) Textile Mills, and more recently connected with the Agricultural Adjustment Administration, will serve as impartial chairman of the three boards appointed, at a salary of $7,000 a year. The other members are:

Cotton: Earle R. Stall, Greenville, S. C., for industry; Godfrey C. Brown, East Orange, N. J., for labor.

Silk: J. W. Nickerson, Manchester, Conn., for industry; E. L. Oliver, Cincinnati, for labor.

Wool: H. J. Walter, Uxbridge, Mass., for industry; Ruth Reticker, Washington, D. C., for labor.

Gorman Offers Mills Aid in Merchandising Goods

Strike Leader Gorman, perhaps lonesome for the front-page position from which he was summarily retired when his strike was broken, temporarily caused a flurry, or rather "made news", early in November by an offer to George Sloan, "on behalf of the nearly 400,000 organized textile workers" (Note: net paid total, credited by A. F. of L., 38,700), to assist the mills in merchandising their goods. The proposal, worthy of more of a humorist than Mr.

Gorman hopes his followers consider him to be, provided, at the best, amusement. It wasn't even a case of Greeks bearing gifts. Gorman is no Greek; he's an English-born synthetic American. But, if he were a Greek, still there'd be no gift!

Mills Must Comply with Retail Solid Fuel Code

Textile mills selling coal or other solid fuels to their employees, lost a round last month when the Industrial Appeals Board sustained on November 8 the NRA order denying the requested exemption from the retail solid fuel industry code of cotton-textile mills. However, the labor provisions of the coal code applicable to mill employees handling coal are substantially the same as corresponding provisions of the cotton-textile code, and it appeared that compliance would consist principally of payment of assessments (based on the amount of coal sold) to the coal code authority, and that mills may continue to sell coal to their employees on the same terms and at the same prices as before.

Marchant Again Heads Print Cloth Group; Springs Added

At its annual meeting in Spartanburg, S. C., on November 17, the Print Cloth Group re-elected T. M. Marchant of Greenville as chairman, and W. P. Jacobs as secretary-treasurer. Elliott W. Springs, of Lancaster, S. C., was added to the executive committee, to which the following were re-elected:

Ellison A. Smyth, Balfour, N. C.; W. D. Anderson, Macon, Ga.; W. C. Hamrick, Gaffney, S. C.; J. P. Gossett, Williamston, S. C.; J. C. Evins, Spartanburg, S. C.; J. K. Morrison, Shannon, Ga.; A. F. McKissick, Greenville, S. C.; George M. Wright, Great Falls, S. C.; W. S. Montgomery, Spartanburg, S. C.; Fred W. Symmes, Greenville, S. C.; and M. P. Orr, Anderson, S. C.

Code Printed Up-to-Date and Interpreted by Georgia Assn.

A service of distinct value to the mills for the remainder of the duration of the cotton-textile code was rendered last month by the Cotton Manufacturers Association of Georgia, which distributed to its members up-to-the-minute copies of the Cotton-Textile Code, incorporating the many alterations and changes made since its original adoption. The sections of the code are printed on separate sheets, and supplied in a durable leather cover in loose-leaf form so that it may be brought up-to-date with any subsequent changes. In addition to the code itself, all administrative and executive orders applying to it are included; and a list of the code authority and its sub-committees. Later, official interpretations on various code provisions will be included in the book.

A New Safety Code for Cotton Mills

By Charles H. Forsaith

A NEW "Safety Code" is being written for the cotton textile industry by a committee of which I am distinctly proud to be the chairman. I say this because I have known each member personally for a long time, and I know the fine work they are doing in the various branches of the industry in which they are engaged.

The need for a new code is found in the fact that much of the machinery, and the method of operating it, has distinctly changed since the previous code was written.

It is the aim of this committee to produce a code that will be as clear and concise as possible, for an industry as complicated as the the operation of a cotton mill. I use the word "complicated" without reservation because in addition to the actual manufacture of the finished goods from raw materials and all this involves, there are the problems arising out of maintenance of plant and machines, generally involving a machine shop; the production of power from either water or steam, which means boiler rooms, generating plants, sub-stations, etc.; watchmen's service, and outside help for handling incoming and outgoing shipments. Each of these departments contain safe practice problems, and we hope to have our code deal with them all, thus avoiding the need of referring the reader to some other code which he may not happen to have.

In an analysis of nearly 29,000 cotton mill accidents, the American Mutual Company found that the causes of over 77 per cent of these were non-mechanical. It seemed to our committee that this was an important fact, and showed us where we should put forth our best effort in this code, namely on non-mechanical accidents. It also seems to me to show that on the whole cotton mill textile machinery is well guarded. This is, of course, absolutely true of new equipment, but we are not overlooking the fact that many mills still have old equipment, and if our code is going to be effective, it must cover the old as well as the new.

The actual form which has been suggested for our code is as follows:

1. Foreword, which states purpose of the code.
2. Management's Responsibility
Overseer's Responsibility
Worker's Responsibility — These three are self-explanatory.
3. General employee rules. These we hope to get in the best possible shape, so that if any employer wished, he could have them printed on a separate card to give to each employee and particularly to new hands.
4. A description of each machine in each process giving its function, operation and particular hazards to be guarded against.
5. Concluding with hazards in connection with Motive Power, Fireman, Watchmen, Machine Shop, Outside Help.

Since last December this committee has held monthly meetings and each member has been assigned certain parts to take care of, and while much has been accomplished, there still remains much to do. As soon as a complete tentative draft is ready, we have planned to submit it to the National and American Association of Cotton Manufacturers for their suggestions, recommendations and approval.

From a report made recently to the Textile Section of the National Safety Council. Mr. Forsaith is chairman of the Section's safety code committee.

JAPAN--as Your Competitor

By Dunhill Marsden

In studying the commercial expansion of Japan, it is necessary to look a little more deeply than the mere fact of figures. Such facts relate a story of effect but may not be as important as the cause behind the facts.

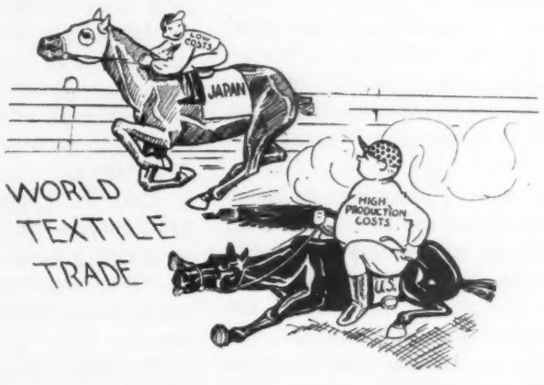
For generations the Orient slept in the complacency of its ideals and philosophies. The affairs of the world were largely written in the deeds of America and Western Europe. The Orient with its mysticism and pagan philosophies was portrayed largely by the stories of missionaries and travelers of adventure.

In 1854 an American fleet pried open the door of Japan and left an invitation to this country to awaken and step up to the tempo of Western civilization, little realizing the Pandora box that it was opening.

The sleeping dragon shook off its lethargy and accepted the invitation with a vitality and mental acumen that has since caused nations to marvel.

Japan reached out and took in Western industrial ideals with a sweep of speed that has made nations fear her ultimate end or purpose.

But Japan did not take some of the other proffered contributions. Japan kept her own social and political theories. Upton Close, writing in the Saturday Evening Post recently, recorded that Japan has the external appearances of Western civilization but her internal philosophies, both social and political, are wrapped in the kimono of a thousand years ago.



The Japanese have never been conquered or subdued or even seriously threatened in their imperialistic philosophy. They, in their religious traditions, feel that they are divine descendants with a divine mission. They are self-seekers shut up on an island home whose family has grown from 25 millions in 1850 to 70 millions in 1933.

This fact of population growth is more marvelous and significant when it is recorded that for generations prior to 1850 the population had grown very slowly.

Japan has a self-conceived divine mission to exalt her national life and to regulate and control the Orient, and in so doing to indicate to the other nations of the world their relationships with the Orient. She plans to be Mistress of the Pacific. Population for power, trade and expanse of territory for economic means, to produce power and respect are the natural purposes of such a program.

The rapidly multiplying "sons of divinity" must have breathing spaces, hence Japan is imperialistic and Manchukus is but the natural result of an overflow of population and the capture of a reservoir of natural wealth needful for executing the "divine plan".

Japan is a mixture of medievalism and modernity. Its cities and many of its factories are modern and smack loudly of a present progress, while in its back country are the family industrial groups of centuries ago, teeming with a handicraft and productions crying for markets and salable because of price.

The social and economic life of the nation is pitched on a scale of living far below that of America and when it is recorded that textile workers earn two yen per day as compared with our American workers who make $2.00 and more per day the story is not complete.

Economists tell us that a yen in Japan in relation to the cost of living, or in purchasing power, is the equivalent of a dollar in the United States, and in comparing the two scales of living from this basis, a Japanese with his yen (or about 30 cents) can buy as much of physical comfort as the textile worker in the United States buys with his dollar.

If this statement is true, then there is a lack of parity in costs in Japan and the United States that can not be wholly explained by the difference in wage scales. There is a difference in economic theory and money valuation in comparison with commodity valuation.

H. B. Brougham, in a recent article in Scribner's, writing on Major Clifford Hugh Douglas' theory of socialized credits as a new idea in increasing consumer purchasing power, records the fact that this theory, in practice, increases production, reduces production costs, and increases consumption far beyond any solution yet offered. Because the theory is so involved and so revolutionary, Douglas is called the Einstein of economic theory, and most countries have "viewed it with alarm and aloofness", yet Brougham says that Japan has "pirated" the theory and is more nearly operating under its guidance than any country today.

If Japan does have an economic theory of advantage then there is all the more reason for her ability to undersell.

Japan's people must work. They are an island nation, therefore they must manufacture and they must sell. They are steaming ahead today with an

industrialism as intense as its evolution will permit. They are entering every foreign market in the world that is possibly open to them. They are entering every useful and productive field to the extent of their possibilities. "Divine domination" and control is bred into the blood and being of every new-born babe.

What Japan Has Done in Textiles

The textile manufacturers of the United States once had a profitable period of foreign trade. They have to have foreign markets to relieve the congestion of production caused by lack of consumer purchasing power at home.

Since the debacle of '29, the distributors of textiles have been struggling to regain foreign trade as the world slowly and intermittently returns to consumption power. In the effort, our textile manufacturers find that Japanese competition is so great that they are not able to cope with it in foreign countries and that America's export of textile commodities is growing smaller instead of larger and, this is intensely noticeable in meeting commodities that are made in Japan.

But a further factor has entered and is much more serious. In the program of the New Deal, with its shorter hours and higher wages and processing tax and raw product control and several other factors, raw material and production costs have advanced so rapidly that Japan is literally flooding the United States itself with its textile products. As high as the recent tariff was reputed to be and as much maligned as its provisions were, and even with the elastic clauses given to the President in its enactment, and even with further powers given to the President under the Recovery Act, tons of merchandise come into every port and slow down American industry.

According to figures collected by Wm. P. Jacobs, Secretary of the Cotton Manufacturers Association of South Carolina, from a recent report of the Department of Commerce, covering the subject of textiles in Japan, the following facts are developed:

Employment in the textile mills of Japan in August, 1933, amounted to 128,864 workers; in June 1934, there were 142.600 with a slight wage decrease.

In regard to production capacity or efficiency of labor, the output of each operative in 1929 amounted to 1.45 bales of cotton per month; in 1933, 1.99 bales per month; in the first half of 1934, 2.02 bales per month.

Spindles operated per worker in 1929 amounted to 329; in January 1934, this figure rose to 539. Eighty-six per cent of the operatives are females.

The production of yarn per spindle during the last half of 1933, on ring spindles was 66.2 lbs.; mule spindles 230.1 lbs. During the first half of 1934, the production of yarn per spindle on ring spindles was 66.7 lbs., and on mule spindles was 273.1 lbs.

The production of yarn for the year ending July 31, 1934, amounted to 3,285,946 bales which is an increase of 354,089 bales, or 12 per cent over the production for year ending July 31, 1933.

The consumption of raw cotton 1933-1934, was 1,609,720,196 pounds, an increase of 11 per cent over the preceding year and a new high record.

"Thus the Japanese have increased employment; reduced wages; employed more women; increased output per operative; increased spindles operated per worker; increased production per spindle; increased production of goods and consumption of cotton".

This they have done in keeping with their implied policy of conquering the textile markets of the world and pushing the industrial prowess of the Empire further towards its goal.

It is unnecessary to list all of the textile importations from Japan. Some of these commodities are handkerchief cloth, ginghams, percales, sheetings, etc. The average yarn numbers of the 2,510,361 yards imported during the first seven months of this year were between 40s and 50s. This is a sample section of the finer counts. In the coarser numbers, in hosiery, in rugs, and various other finished products, huge quantities come in.

Taking all of Japan's exports as are indicative of her trade expansion a report recently issued by Mr. T. A. Bleason stated: "During the first six months of 1934 the export value of Japanese goods totaled 1,003,000,000 yen, as against 829,000,000 in the corresponding period last year.

"Two major causes have enabled Japan to do this —low labor cost and the extreme depreciation of the yen."

In Haiti, where we have enjoyed trade, packages of goods are arriving in the ratio of 17 from Japan to 1 from the United States. August 1934 arrivals of cotton piece goods showed Japan with 2,556 packages as against 149 from the United States.

Colombia has only recently been entered by Japan but she is making rapid inroads. Cuba has its story, the Philippines, China and all South American and Central American countries.

Japan must expand or explode and nations do not want either. Regardless of the wishes of nations, Japan is self-determinative as is shown by her recent action in the League of Nations by her acquisitions, by her correspondence with England, by her attitude towards the other countries of the Orient.

(Continued on page 95.)

PROOFING OF TEXTILES

Part I Against Water and Flame

By Andrew J. Kelly
Burkart-Schier Chemical Co.

THE proofing of fabrics against the action of water and of fire is one of the traditional objectives of the textile finishing industry. Clothing and other coverings made for protection were ever more important, even if not always more coveted, than those made for adornment; and the desirability of materials which would resist wetting by water and destruction by fire must have been realized from the beginning. Of course skins and hides provided for a long time a type of protection that could not be approached by textiles, but their obvious disadvantages served to emphasize the need for something different, and better.

Development of Proofing

As mankind progressed spun and woven cloths far superior to skins in color, design, and other aesthetic qualities were produced, and because they were adequate for most requirements the textile industry grew and prospered. At the same time the need for water-proof and fire-resistant fabrics was fully realized and methods for producing them were vigorously sought. Some over-enthusiasm for inadequate results, and some chicanery too, were inevitable in the effort to capitalize on the appeal of such fabrics. "Waterproof" garments that wet freely and "fireproof" curtains that burned eagerly were not uncommon. And most of the really effective materials were so stiff or sticky and so lacking in sensory appeal that they too were received with little acclaim. These early deceits and disappointments, inevitable though they were, have set up a prejudice against proofed textiles that unfortunately has never been entirely overcome. This in spite of the fact that today truly water-repellent and fire-resistant textiles are available that possess all the desired qualities of feel and color and design; that appeal fully as much to the senses as to the common sense. Such proofing has a strong consumer appeal and the production of such textiles is good business because of the great potential market for them. Water and fire-repelling cloths can be made from practically every textile fiber, and though there is room for much more progress, proofing practice has come a long way. A big problem of the moment is the overcoming of old-time prejudice, but that is a merchandising problem and not to be considered here.

The processing of textiles to make them resistant to wetting by water and impervious to the penetration by it has been practiced for centuries. Protection of animals, including man, and property both personal and real, from the disastrous effects of rain must have been a first problem of our very early ancestors. Caves and similar shelters were the first answers but the need for a more portable form of protection was apparent then as now. It has been said that the first process for obtaining water-repellency was hit upon by accident in this manner: some soap was left in material that was later treated with alum or other metallic salt and upon drying the material it was noted it resisted wetting. Probably this particular method of waterproofing was accidentally discovered but the writer inclines to the belief that the first proofing processes antedated soap, and were not accidental. The familiarity of the ancients with a large variety of gums and resins, and their wide use of them, leads one directly to the conclusion that they were familiar with the waterproofing properties of these substances. Large quantities of resins were used by the Egyptians in preparing mummies and mummy cloths; the wrappings as well as the bodies were well soaked in resin, which imparted a considerable amount of weatherproofing. On our continent, the Spanish conquerors of Mexico told of seeing linen clothing with a coating of gum. The vast patent literature of waterproofing dates back to 1627 with this curious item:

> Wolfen, John Jasper.—A newe invention for the making and preparing of certain stuffe and skynes to hold out wett and rayne."[1]

Martin in a paper presented to the American Association of Textile Chemists and Colorists[2] covers comprehensively the more modern history of waterproofing. He states that the first India rubber cloth was produced in England in 1791, thus antedating Mr. Goodyear's vulcanized rubber, patented in 1893; while the first waterproofing that might be applied to silks was patented in 1877. Among other milestones he mentions that the method of producing raincoat material by layering a thin sheet of rubber between two cloth fabrics and then hot calendering to vulcanize them into a unit was introduced in 1879. This procedure, virtually unchanged, is practiced today.

Shower-, Rain- and Water-proofing

In discussing present-day methods of treating textiles to make them resistant to the wetting action of water, three distinct classifications based upon the results obtained must be mentioned. The terms generally applied to these three are: (1) *Showerproofing*, (2) *Rainproofing*, and (3) *Waterproofing*. Typical of the first classification is the so-called "splashproof' hosiery which is completely pervious to air

but so prevents the spreading of water on its surface that droplets are shed without wetting or water-marking. Umbrella cloth and other material that is very difficult to wet and only partially pervious to air might be placed in the second class. The third class would include oil cloths, oil skins, rubber fabrics, and the like—almost impossible to wet and in most cases air and weather tight as well. The 1933 Yearbook of the AATCC in the report of the Subcommittee on Waterproofness of Fabrics (page 170) gives definite data for the proper classification of any proofed material, and also means for testing all qualities of proofing.

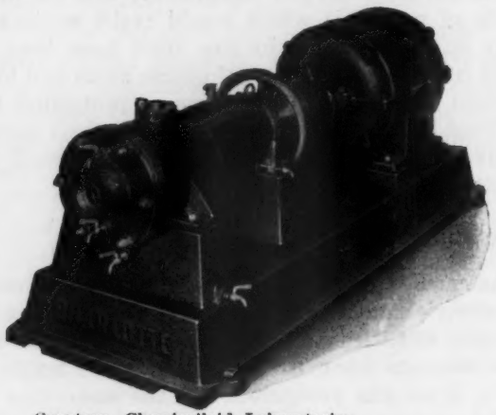
Producing Shower-proof Effects

The so-called shower-proof effect is the most easily obtained, as well as being the least resistant to water. It usually denotes a cloth or fabric which is non-absorbent to water but completely permeable to air. Such cloths allow evaporation of perspiration and meet the demands of modern hygiene. They are hardly inferior to untreated materials. Of course, the results obtained vary greatly in efficiency and are dependent to some extent on the number of the yarn used and the tightness of the weave or knit. The simplest of shower-proofing methods consists of treating the fabric with a solution of normal aluminum acetate and then drying it on a hot calender or board. The heat converts the salt to the insoluble basic aluminum acetate which is water repellent and imparts a fair degree of resistance to wetting. The procedure is simple: Pad or soak the material in a 3 degree Tw. solution of aluminum acetate, extract, and dry at 160 degrees F. Formerly it was the custom for every mill to make its own aluminum acetate by the interaction of lead acetate (sugar of lead) and aluminum sulphate (simple alum). A solution of 9 parts of lead acetate was added to a solution of 5 parts of aluminum sulphate, the white precipitate of lead sulphate allowed to settle, and the clear supernatant liquid siphoned off and diluted to 3 degrees Tw. as needed. However, concentrated solutions of aluminum acetate are now available commercially and for the average mill this is the most practical means of obtaining it.

The Metallic Soap Process

This leads naturally to the metallic soap process —the next most efficient splash-proofing method. Mentioned among the early processes, it is still a very common means of proofing textiles against water. Two baths are ordinarily required. In the first, material impregnated at 120 to 140 degrees F. with a 0.25 per cent solution (approx.) of a good grade of textile soap, generally of a high titer such as tallow or stearin, is extracted and then entered into a cold 3 degree Tw. bath of aluminum acetate. It is well soaked or padded, extracted without further rinsing, and dried in the usual manner. The order of baths may be reversed; either order has its merits. Some mill men prefer to finish in the soap, saying it leaves the goods in better shape, likewise the machine. Others say finishing in the aluminum bath gives a better fixation of the proofing. An early means of applying the insoluble soaps in a single bath involved padding the goods in process with a benzene (or other volatile organic solvent) solution of the metallic soap, then drying to evaporate the solvent. This involves a fire hazard, however.

In any event, the purpose of these procedures is to impregnate the fibers of the fabric with an insoluble metallic soap, and the more perfect and thorough the impregnation the better the quality of proofing. The insoluble soap further helps to lay and bind the fibers and adds a certain amount of strength to the yarn, similar to waxing thread. Some of the so-called run-preventives for hosiery for sale in the retail stores are based on this fact, and consist of simple aluminum salts to be dissolved in water for soaking the silk hosiery. The hose is then dried and afterward "soaped" in the usual manner. Though casually mentioned in the directions for use



Courtesy, Chemicolloid Laboratories

Charlotte colloid mill. This type mill well adapted for making many types of water-proofing emulsions . . . . . .

of the powders, this soaping is very important since upon it depends the precipitation of an insoluble aluminum soap.

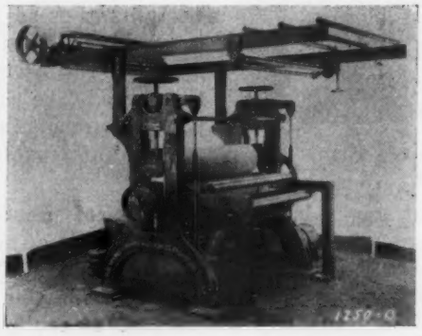
Salts of many other metals besides aluminum are employed in metallic soap proofing methods. Copper soaps in particular are valuable because they possess decided bactericidal and antiseptic qualities, resisting the action of many lower organisms such as germs, mold, algae and the like. Fishing lines and nets are commonly treated with copper soaps as are tentings and other materials subject to frequent wetting and drying under adverse conditions. The procedure is similar to that given for aluminum soaps. Among other metallic compounds we have seen mentioned in patent and technical literature of water-proofing are zinc, lead, barium, strontium, cerium, thorium, lanthanum, didymium, and titanium.

Paraffin Wax Emulsions

A notable improvement over the old metallic soap process came with the use of paraffin wax emulsions. The simplest application of this improved method is exactly the same as the two-bath method of producing insoluble aluminum soaps in the fibers of a fabric, except that in the first bath the material is treated with an emulsified paraffin wax instead of a

simple soap. After treatment with aluminum acetate solution is exactly the same as described.

An easily made and efficient paraffin wax emulsion may be prepared as follows: Paraffin wax, 15 per cent (a hard melting wax is best); stearic acid, 5 per cent; water, 80 per cent. Heat the mix to the melting point of the mixed wax and stearic acid, agitate thoroughly, and then with continued stirring add ammonia (the ordinary aqua ammonia of commerce) till the mix becomes of about the consistency of flour paste. This will store well and for use is diluted with warm water and added to the bath for proofing, using about a 2 per cent solution. After-treatment with aluminum acetate of 3 degrees Tw. and drying gives a fabric with excellent resistance to rain, and at the same time of first class appearance and handle and with porosity unimpaired. It



Courtesy, The Textile-Finishing Machinery Co.

Two-roll padder or mangle, suitable for applying many proofing compounds and emulsions . . .

is said the material can be reproofed after washing by repeating the aluminum acetate impregnation and drying as usual. But, reproofing is a moot question.

Modern and very effective are the one-bath rainproofing compounds much in vogue today. Although all emulsions involve the chemistry of colloids, and emulsions are heavily used in all phases of wet finishing, some of these one-bath proofers are among the most advanced things in colloids yet applied to textiles. The early one-bath proofer was simply a metallic soap in an emulsified or colloidal form. Of course, if one were to simply mix aluminum acetate or other soluble aluminum salts with soap solution the result would be a sticky worthless mess. But by the use of a protective colloid such as glue or gelatin the sticky precipitate can be avoided and the mass maintained in a form easily dispersible in water and ready for application. Here is a resume of a government formula for waterproofing cotton piece goods, which involves the use of a protective colloid: In 20 gallons boiling water dissolve 5 pounds of gelatin and 5 pounds of tallow soap. Mix thoroughly, and add 7½ pounds of alum dissolved in water. The bath is cooled to approximately 95 degrees F. and is then ready for use. Upon drying goods impregnated with such solutions a fine precipitate of aluminum soap is obtained.

Nowadays, one-bath colloidal proofers containing paraffin wax and aluminum acetate are available. The wax is brought into a condition of perfect colloidal dispersion becoming of about the consistency of jelly upon cooling. This is combined with neutral aluminum acetate to form a white jelly. It is easily diluted in warm water and ordinarily applied as a 2 per cent solution. Such a solution (or more properly, emulsion) is excellent for proofing yarn, adding desirable properties in weaving as the wax is of course a good lubricant. Although yarn proofing is now uncommon it may not be always so.

As in the other waterproofing methods discussed, these one-bath proofings are permeable to air. This fact of water-resistance without loss of porosity may seem puzzling to some—it is merely another evidence of surface tension. In contact with certain waxes, greases, metallic soaps and the like, water loses the ability to spread, and as is its nature in such a case it assumes the form of spherical drops or droplets. These little globules of water, which seem almost to be possessed of a "skin", are too large to pass through the interstices of the proofed fabric; and not being able to spread and adhere by wetting, are shed as from a duck's back. It is this same surface tension of water which enables one to float a needle on water if care is taken not to break through the surface which as mentioned acts exactly as a skin.

Other Emulsions

Emulsions of substances other than paraffin find application in proofing. A favorite is Japan wax, also known as vegetable tallow. Japan wax is not a true wax but a glyceride, consisting chiefly of palmitin and free palmitic acid (a hard fatty acid). The free fatty acid makes it a self emulsifying wax; that is, with alkalies this fatty acid combines to form soap and thus emulsify the palmitin and unsaponifiable matter. Japan wax may be used as an emulsifier of paraffin or other waxes but it is best to add some additional fatty acid. A simple basic formula for soluble Japan wax, given by the Department of Commerce, is as follows:

(1) Melt 80 lbs. Stearic Acid and 80 lbs. Japan Wax in 70 gallons of hot water.

(2) Allow to cool to just above the melting point of the mixed fatty acids. (about 160 degrees F.)

(3) Add slowly with constant stirring 2 gallons of Ammonia.

(4) Allow to cool and solidify.

This emulsion may be diluted with warm water and applied as other wax emulsions. Paraffin wax may be substituted for part (up to fifty per cent) of the Japan wax. By the use of protective colloids as already described, aluminum and other metallic salts may be incorporated to give a one-bath compound. Carnauba (a very hard wax), montan, beeswax, and various others, as well as some gums and resins, find use in emulsified-wax proofers. Some remarkable results are obtained with these agents. One manufacturer claims that it is possible, using 16½ pounds of their proofer to 165 pounds of dextrine, to so proof a loosely woven rain coat cloth that it will support water 3 inches deep for 24 hours; the porosity of the material being maintained. Furthermore, some of the proofers give delustering as well as water-resisting effects.

The inherent properties of rubber naturally sug-

gested its use for waterproofing, and as mentioned already India rubber cloth was produced and marketed in England as early as 1791, while in 1879 a rubber interlined fabric was offered. More recent is the use of water emulsions of rubber. Latex is the milky sap of the rubber tree and is a natural emulsion of rubber even as milk is a natural emulsion of butter fat. Prepared water dispersions of rubber are compounded stable emulsions of coagulated smoked rubber. Rubber latex as it comes from the tree is unstable and subject to "reversion" (or coagulation) which is a breakdown of the natural emulsion. It can be stabilized by the addition of ammonia and shipped in bulk without further treatment (except perhaps another addition of ammonia) to be sold as such. The stabilized latex of commerce will contain approximately 40 per cent of rubber, unless concentrated.

Rubber in Waterproofing

Boxser[3] in a recent article in this journal has carefully discussed the compounding and use of latex. He maintains that the finishing department of the average textile mill is adequately equipped and manned to develop rubber latex as a finishing agent to meet the particular requirements of any fabrics, and gives data on the compounding of water dispersions of rubber. Reference to Mr. Boxser's article is urged upon those working with or contemplating latex or rubber proofing. The rubber emulsions can be applied in wet finishing operations, which is a most desirable feature. An early objection to them was that the coatings obtained did not adhere nearly so well as those applied from benzene or naphtha solutions, but the use of modern wetting agents has overcome the difficulty. Full penetration of textile fibers can now be obtained from water dispersions of rubber. Various qualities of proofing from mere water-repellency to full water-proofing may be obtained. These compounded rubber emulsions join the company of other "solubilized" agents that are doing so much to aid the mill chemist—the soluble penetrants, solvents, waxes, mineral oils, soaking oils, etc. They make it possible to obtain practically every known effect with simple wet finishing operations, and in standard wet finishing equipment. Emulsions, colloidal dispersions and the like play an important part in modern mill practice.

Casein, a protein obtained from milk, is a fairly common waterproofing agent. Clark[4] gives several formulas for proofing with casein, including one for bookbinding cloth. Casein with formaldehyde or certain metallic salts forms insoluble compounds. Casein paint on canvas can be waterproofed with formaldehyde to give an amazingly lasting brightness and luster. Other substances mentioned in patent literature of waterproofing in the wet way include cumar, Karaya gum, stearine and oleine, vaseline, tallow, and more recently asphaltic and bituminous emulsions. These last are already finding a considerable application for proofing roofing papers and other exposed coverings.

The fixation of synthetic resins of the phenol-formaldehyde type within the fibers of textiles is a

Box tester for determining waterproofness of fabrics . . By courtesy, from 1933 yearbook of American Association of Textile Chemists and Colorists . .

proofing means that promises much. The application of Bakelite and similar condensation products is in its infancy but has already given concrete evidence of merit. Application is fairly easy and the possibilities are dazzling. The Tootal anti-crease process involves the fixation of a synthetic resin within textile yarns. The patent situation surrounding these synthesized resins and plastics is unfortunately complicated.

What might be termed "chemical proofing" depends upon the solvent action on cotton of ammoniacal copper oxide (Schweitzer's reagent). This is a popular and effective means of proofing heavy cotton fabrics—the world's largest circus uses this method for waterproofing their tents. Sufficient of the cuprammonium solution is used to dissolve about 2½ per cent by weight of the cotton fabric which is thereafter dried in hot air. This drying volatilizes the ammonia and the dissolved cellulose and copper oxide are precipitated on the cloth. The copper retained acts as a positive preventive of mildew, an attractive feature on material that may be folded and stored while wringing wet.

The production of "immunized" yarn by forming a film of a cellulose ester on cotton fibers is an analagous process. Chemical proofing depends upon softening or dissolving enough of the outer part of a yarn or fiber to spread and form a thin skin over its own surface. It presents thereby a smooth impervious coating instead of the usual open, multicellular exterior. A similar effect can be obtained by merely applying the dissolved material, as in the case of "doping" fabrics for airplane wings by applying a film of cellulose acetate carried by a suitable solvent.

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Grateful acknowledgment for aid given is also made to F. P. Veitch of the U. S. Dept. of Agriculture; Wm. D. Apnel of the U. S. Department of Commerce; the General Dyestuff Corp.; and the National Aniline & Chemical Co.

(This discussion of water- and flame- or fire-proofing of textiles, by Mr. Kelly, will be concluded in the January issue. The next installment will discuss water-proofing by dry methods; flame-proofing; and double-proofing against water and flame.—The Editor.)

Georgia Mill Men Discuss Problems of Slashing and Weaving Departments

THE fall meeting of the Textile Operating Executives of Georgia, postponed from September, was held on Saturday, November 10, at the Georgia School of Technology. At this meeting of the superintendents and department heads of the Georgia mills, practical problems relating to slashing and weaving practice were discussed. There was a good attendance of Georgia mill men, with many visitors from Alabama and other states.

In the annual election of officers, R. D. Harvey, assistant agent and superintendent of the Pepperell Mfg. Co., Lindale, Ga., was made general chairman succeeding George S. Elliott, manager and superintendent, Pacolet Mfg. Co., New Holland, Ga. J. C. Edwards, superintendent, Martha Mills, Thomaston, Ga., was elevated to vice general chairman, succeeding Mr. Harvey. Frank L. Asbury, Jr., superintendent, Hillside plant, Callaway Mills, LaGrange, was elected to a full 2½-year term on the executive committee succeeding Mr. Edwards, whose term expired with this meeting.

R. D. HARVEY, superintendent, Pepperell Mfg. Co., Lindale, Ga., who was last month elected general chairman of the Textile Operating Executives of Georgia . . . . . .

At the suggestion of the executive committee, the organization voted to increase the membership of the executive committee from five to seven, in order to secure representation from more manufacturing centers over the state; and Allen Jones, superintendent, Muscogee Mfg. Co., Columbus, and Harry H. Purvis, superintendent, Chicopee Mfg. Corp., Gainesville, were elected to full terms on the board. Robert W. Philip, Editor of COTTON, was re-elected as secretary-treasurer.

C. A. Jones, director of the A. French Textile School, at Georgia Tech, was introduced by General Chairman Elliott, and made a brief talk with regard to the work of the school and invited the mill men to visit the school.

Causes of Yarn Sticking to Slasher Cylinders

Mr. Elliott next introduced J. C. Platt, agent, Aragon Mills, Aragon, Ga., who was scheduled to conduct the slashing discussion and who, in the absence of T. H. Pennington, who was designated to lead the weaving discussion, handled that part of the program also. Mr. Platt handled the discussion in an able manner and produced an exchange of opinions helpful to everyone present. This organization devotes its program to a round-table discussion of practical problems, previously assigned for report, and Mr. Platt immediately began the discussion program.

Reported by Robert W. Philip.

The first question was, *"What are the causes of yarn sticking to slasher cylinders, and the remedies?"* The first man to answer was F. L. Daniel, overseer slashing, Columbus Mfg. Co., who reported that "we have not had much trouble with that recently; we did a few years ago, when using a potato starch mixed in with thick boiling starch, but since we changed to a thin boiling starch, we have no trouble."

John White, of Columbus, mentioned as causes for this difficulty, "size being too cold in the size box (under 200 degrees); lumps being mashed between the rolls; bumps on the face of the cylinders; too much starch for the percentage of softener being used." P. W. Ellis, superintendent, Sibley Mfg. Co., Augusta, said, "I have never seen yarn stick to a clean cylinder. If the cylinder gets gummed up the yarn is apt to stick. A remedy is to turn your size formula from alkaline to acid, and you will clean up the cylinders." Mr. White added that condensation in the cylinders has a tendency to cause sticking, and Mr. Platt asked him why. Mr. White replied that when there is water in the cylinder an even drying is not secured.

"I do not recall having any particular trouble with yarn sticking," reported R. P. Sweeny, superintendent, Exposition Cotton Mills, Atlanta. "The main thing is to get the compound mixed in the proper proportions."

J. W. Balentine, overseer weaving, Martel Mill, Egan, Ga., stated that "we did have some trouble and found the cause to be condensation in the cylinder preventing an even drying. As a remedy we installed a pet-cock in the head of the cylinder and opened it early in the morning and on starting and blew the steam down. You must have a balance as to starch and compound. We use a one-piece preparation and use 1 pound of it to 10 pounds of starch, and cook it at about 206 degrees for 1½ hours after reaching a boil. We keep it in the size box at about 212, and carry from 8 to 10 pounds of steam on our cylinders."

"In regard to the matter of condensation," suggested George S. Elliott, "is it that the condensation causes the sticking, or is it because the cylinder is not hot enough, and when the yarn goes around it leaves wet starch on the cylinder and then when it goes to get hot there is sufficient starch there to bind the yarn to the cylinder and cause it to stick? Is it condensation, or are you starting the slashers before they are hot enough to dry the warp?"

"As you say," responded Mr. White, "on starting the slashers, if you start with the size cold in the

size box it will have a tendency to coat the cylinder and as the cylinder begins to get to the right temperature, there is a coating of starch on it." Mr. White asked for information as to a means of siphoning the condensation from the cylinder. Frank H. Cooper, assistant superintendent, Fulton Bag & Cotton Mills, explained that there is a method of removing condensation which is used mainly on drying cans in finishing plants; it is more of a pressure system than siphoning, however, and consists of a pipe extending to within a small space of the inside surface of the cylinder or can, and the pressure inside forces the water out. He indicated this could not be used in cylinders with stay-rods as these would hit the pipe.

J. W. McElhannon, superintendent, Eagle & Phenix Mills, Columbus, reported that he has run slashers equipped with such a siphoning device, consisting of

J. C. EDWARDS, superintendent, Martha Mills, The B. F. Goodrich Co., Thomaston, Ga., who was elected vice general chairman . . . . . .

three pipes that go down to ¼-inch of the inside surface of the cylinder and are connected to the journal, and as the cylinder revolves around the end of the pipe goes down into the water and the pressure forces it out.

"My experience as to yarn sticking to cylinders," continued Mr. McElhannon, "has been there are a lot of things that will cause it. Among them are: the yarn not being properly squeezed; not enough weight on the squeeze rolls; too much size coming through on the warp; too much condensed water which kills the heat of the cylinders so they will not dry the yarn; copper rolls not being smooth; dents in the cylinders caused from the buckets getting loose."

George B. Moore, superintendent, Gainesville Cotton Mills, added the following as causes: not cooking the size properly, too much gum in the compound, and dirty cylinders. Mr. Ellis suggested that if slashers are trapped individually there will be less trouble from condensation than if all are hooked up together.

Temperatures for the Size Box

"What temperature do you run in the size box?" was the next question. J. I. Alford, assistant superintendent, Covington Mills, replied that, "We feel this is an individual proposition for every mill. We run a twist of 5.00 times the square root, which is just a little hard, and we run that at 40 yards a minute, varying on the 48 different constructions we run, and in our case we feel that 200 degrees is the right temperature in the size box. We believe we get the proper penetration, and keep the size in nice shape to go onto the yarn, and we have no trouble with the size breaking down." This is on 30s warp.

Lee Tillery, assistant superintendent, Fairfax Mill of West Point Mfg. Co., said, "The temperature in our size box runs as near boiling as we can get it, about 208 degrees. The more we boil the more thoroughly penetrated a yarn we get and the better the work runs in the weave room." John Harrison, assistant superintendent, Muscogee Mfg. Co., reported a range from 200 to 208 degrees, according to the construction being run; Frank Asbury reported 204 degrees; V. J. Thompson, superintendent, Manchester plant, Callaway Mills, reported 205 to 210; and J. M. Williams, overseer weaving, Aragon Mills, said "we run as near to 205 degrees as we can get it. We have an indicator that shows us just what it is doing all the time. We did try to run 212 degrees but found that the size broke down and the yarn was tender."

Causes of Soft Places in Warp

"What causes soft places of from three to five inches in length to show up all the way across the warp at irregular intervals throughout the warp?" Mr. Platt next asked. V. J. Thompson replied, "I do not know, but I think letting the size get too low in the size box would cause it, and you do not get a good penetration. We have had more of that trouble when controlling by hand instead of automatically." R. S. Steele, superintendent, LaFayette Cotton Mills, said he doesn't have any of that trouble now, but did once have it due to an uneven squeeze roll, and he said also that a faulty blanket would cause it. Mr. Daniel suggested that a slipping blanket or jacket would cause it; also not having a constant level in the size box. George S. Elliott suggested that, "it strikes me that if you knew whether or not these spots were occurring at regular or irregular intervals, we would know about what to work on. I would say offhand that probably some eccentric in the squeeze roll or section beam might cause it; however, it would not run the same distance every time. I have heard of slipping yarn on the cylinders causing a shedding effect from the sizing, but we have not encountered this particular trouble."

"I think it is on heavy sets where you will have more of that trouble," said Mr. Thompson, "where the ends run up to 5,000 to 6,000 ends, and the sley is so heavy you do not get the size on it properly." Mr. Elliott added that, "I do recall something that took place on a heavy set. We had a journal on a top squeeze roll that was badly worn to where it would play in the fork bearing, and it would work back and forth and shed the accumulation of size where it had rolled over." Mr. Williams suggested that sometimes the trouble could come in starting a slasher too quickly, because the inertia of the squeeze roll would cause it to be slow in starting and cause a slippage.

Does Per Cent of Moisture Affect Face or Color of Cloth?

"Will the amount of moisture left in the yarn on coming from the slasher have any appreciable effect on the face or color of the cloth made at the loom?" was the next question. J. F. Childs, overseer weaving, Lanett Mill, reported that all of his cloth is grey, except some striped goods, and so far they have not had

any trouble with the amount of moisture causing a different face on the goods. He said they try to hold the moisture between 7 and 8 per cent. Mr. Asbury was called upon and said, "I do not think I am competent to answer that; I have always heard that the amount of moisture did have an effect on the feel on fine goods, but I cannot give you any information about it." Mr. White declared that on dark shades, such as violet and helio, a difference in moisture content does make a difference in the shade of the cloth from the loom.

Z. B. Mangum, assistant superintendent, Avondale Mills, Sylacauga, Ala., stated that "we have not had exactly that trouble, but on chambrays we have had trouble with shading up in the cloth when we were using wet filling, if the filling was overconditioned, the yarn from the ends of the quill where the moisture remains the longest would cause dark streaks through the cloth." Mr. Sweeny commented that "when you wet a yarn the fibers on the yarn will lie closer, so that in that respect a filling with too much moisture, or a warp, might cause some difference in the face from that account."

Lease Strings at the Slasher

"Do you use lease strings at the slasher?.. If so, how often do you lease?" This was the next question from Chairman Platt.

B. E. Willingham, overseer weaving, Fulton Bag & Cotton Mills, replied that "we run a lease every beam and sometimes more often." Harry H. Purvis said, "We run double head slashers, and our sets range from less than 1,000 ends to around 3,000 ends. On the small sets we run a lease about every three warps, and on the heavier sets we lease about every 1,000 ends." R. S. Steele said, "we use lease strings but only when it is necessary; I mean, if the warp gets out of lease we do it, but we have run whole sets and never taken a lease." Mr. Moore said, "We lease ours about every three or four loom beams."

J. F. Childs of Lanett declared they had found it the best practice to run a lease regularly every two hours, as that gives them better weaving. Lee Tillery reported that "we run double-head slashers, and have quite a bit of trouble with ends 'stealing' from one head to the other, and we lease on every beam and also in the case of a break-out." Cliff Barnes, overseer weaving, Exposition Cotton Mills, said, "We string when it is necessary; if you do not have any drawbacks or laps there is no need to lease." J. I. Alford said, "we run on print cloths, and the sets run about 12 hours, and we lease twice per set." George Elliott said, "we run a lease at the beginning of the run, and unless we have a break-out we lease at the beginning of the next run. We do not make a practice of leasing at any specified time other than on a new set."

Aluminum Sulphate in Size

A visitor asked for information as to stretch on slashers. Mr. Elliott explained that this was fully discussed at the September 1933 meeting, and that the reports showed stretch ranging from 7 to 1.5 per cent, with an average of about 2½ per cent total stretch.

A question as to the use of aluminum sulphate in the size mixture had been submitted. One man reported that at a previous location, "we were running with a thin boiling starch, and did not have sufficient time to cook when we changed to a pearl starch, and so we used a small proportion of aluminum sulphate in the same manner that other converting agents are used, to cook the thick boiling starch. We had been using about 240 pounds of thin boiling starch to the kettle, and, using ½-pound of aluminum sulphate, we used about 200 pounds of pearl starch for the same mix, in 250-gallon kettles."

Weaving Discussion

Causes of Rainbow in Cloth

Mr. Platt next went into the discussion of the questions on weaving. The first was, *"What are the causes of rainbow effects in weaving wide goods; how are they eliminated?"* This was submitted to apply to all widths of goods. There was some discussion on it, and it was generally agreed that this condition resulted largely from the principle of weaving, due to the spread in the reed, and the contraction of the warp and filling causing greater contraction at the selvages, and thus producing a bowed effect. As a remedy, Mr. Thompson suggested heavying up on the drag roll. Lloyd H. Rice, general superintendent, Alabama Mills Co., said, "I do not think the suggestion about the drag roll would help, but the drag on the filling and the timing of the harness have more than anything else to do with it. When the shuttle leaves one end of the loom it goes through the filling at the fell of the cloth, and then it goes at an angle to the filling, and the filling in the middle has further to contract. If you set 3½ inches from the fell of the cloth you will get more rainbow on that account." B. W. Robinson, superintendent, Elm City plant, Callaway Mills, was called upon, and responded by saying that his experience had been mainly on the heavier weights of duck, in which this was an ever-present problem. He declared there were so many factors which might contribute to the condition that it was mainly an individual problem.

H. R. Gaffney, Sibley Mfg. Co., pointed out that "the selvage is usually made two-ply or twice the weight of the body of the cloth, or is being reeded in twice as dense, and as a result the contraction will be greater at the selvage. That can be overcome fairly well by skipping dents in the selvage, for example, reeding two ends for three dents and skipping a dent, to reduce the density. The simplest remedy is to use jack spools, as is done on marquisettes, but this is not practical on most constructions."

"I made some tests to determine what causes the rainbow in goods," reported D. F. Poole, of Alabama Mills, "but I cannot explain it so it would be understood. It is due to the contraction in the warp yarn. There is more drag on the warp yarn and it contracts less in the middle. If anybody wants to make a test, you can stop a loom and put in one pick of colored filling, and run the loom for three or four inches and then put in another colored pick, and measure the bow. If you set the cams late, about ¾-inch from the fell of the cloth, and start the loom, you will find you have

less bow than when the cams are set about 3 to 3½ inches from the fell of the cloth. That is a remedy, but a lot of goods will not run with the lay set that close to the fell of the cloth with the harness level."

Cork, Rubber and Other Fillet for Take-Up Roll

"Have you found any fillet better than tin for covering the take-up roll on the loom?" was next asked.

Harry Purvis stated he had tried composition-cork and rubber fillets, but had found nothing so satisfactory as the tin. The trouble with the rubber was that it stretched and had a tendency to creep on the roll, and the cork-and-rubber seemed to pick the goods up more than the tin, he said. J. F. Childs of Lanett reported the use of metallic card wire as fillet on the sand roll on a few looms on 90-inch laundry cloth. He said this was wound on the roll, in about the width of

J. C. PLATT, agent, Aragon Mills, Aragon, Ga., who led the Georgia mill men in their slashing-weaving discussion . . .

doffer fillet, and brazed on the ends. This has been running on these looms for about seven years, with no difficulty, and it performs satisfactorily. He said they like it because they never have to change it, and it seems to hold the cloth on this work better than the regular tin fillet; that there is no sign of the teeth, which run "with the cloth", picking up the ends.

Causes of Kinky Filling on Sateens

"What are the most common causes of filling looping or kinking on sateens?" was next asked, and one man seemed to express the general opinion when he said that "filling will kink on sateens the same as on any other fabric, and from the same causes—only more so." Mr. Thompson suggested that worn cams, too much power on the loom, shuttles not boxing properly. too much twist in the yarn, harness not being set right, were among some of the major causes. Mr. Hodge of Muscogee reported that they have very little trouble with kinking on sateens. A member suggested that the reason probably was that he doesn't run much of this construction. Mr. Hodge declared that an early pick will cause more kinking than a late pick. This problem of kinky filling was discussed in connection with the next question.

Fast vs. Slow Cams on 3-, 4- and 5-Harness Work

"What cams are considered better to use on three-, four- and five-harness work: fast or slow? In other words there are two kinds of sateen cams, one called regular and the other so constructed that they will cause the harness to go down slow and up fast? Which is better?"

George S. Elliott replied, in explaining the question, that "there are cams so designed that they will force the harness down quickly in less time than it takes for the harness to rise; these we term quick acting. We have tried several sets of the other cams on sateens and twills, and have always gone back to the Draper standard cams for these classes of work. Some people claim great things for them." J. F. Childs of Lanett reported that they had been unable to adopt the new cams generally, that some section men liked them and others were just as opposed to them.

Mr. Elliott brought out in connection with these cams that "they do change the face of the cloth, if all other settings are the same. On the twill it made more of a firm rib or twill line; and on the sateen it produced what we call 'hungry-looking' cloth; so it helped in one case and did not in the other.

"I think the reason that this question of kinky filling is such a night-mare is that there are so many things that can cause it. Some men will find it coming from bouncing shuttles. I have heard of others who put all the blame on the spinner, for too much twist, and of course excessive twist will cause it to kink, but frankly, when you are looking for the causes of kinky filling, on any kind of goods, you must take it up carefully; the first thing is to get out all of the twist possible, and then take up each individual point and adjust it correctly; box the shuttles properly, reduce the power all possible, see that the timing and setting of the harness is correct, etc. All loom settings must be as near correct as possible to hold down kinky filling, especially on 5-harness sateens.

W. A. Powell, overseer weaving, Chicopee Mfg. Corp., asked whether an increase in loom speed might increase the filling kinks. Mr. Rice brought out that properly tensioning the filling in the shuttle will help prevent kinking, stating that in some cases a friction is put half-way back in the shuttle.

The prepared reply of A. D. Elliott, superintendent, The Trion Co., who was unable to attend, was as follows: "I prefer slow cams as the work runs better and the harness and strapping last longer. In trying out fast cams I have never been able to see the better results as to cloth appearance that is claimed for them."

Methods of Figuring Reeds

"How do you figure reeds going to two- and three-harness constructions? Please give the reed you would use on a 48-sley sheeting and on a 96-sley drill, three harness." This was next submitted by Mr. Platt.

P. W. Ellis was first called upon, stating that 28 years ago his father had given him a rule which he had used ever since, usually if possible, ordering one reed for a new construction and working from that point. This, the popularly used rule, is Threads per inch minus 1, times 95 per cent, divided by threads in dent, will give dents per inch.

H. R. Gaffney was called upon, and replied that "I cannot give you any arbitrary rule. So many things enter into it: whether or not you have a high or low take-up; the tension on the warp; the humidity in the weave room; the size of the filling, and the twist—it is up to a man to work it out for himself."

R. P. Sweeny, superintendent, Exposition Cotton Mills, was called upon, and used the examples in the question for submitting his method of calculation. He pointed out, however, that a man must build up experience tables on contraction in different goods, as this will vary. Taking a 36-inch, 48x44, 3.25 yard sheeting, with 15s warp and 14s filling, he said the first thing is to add ¼-inch to the width, making it 36¼-inch. Then, from experience tables on a fabric of this kind, allowing 7½ per cent contraction, this means that 36¼ inches is 92½ per cent of the spread in the reed, which will figure out 39.19 inches. Then, multiply the width by the sley, 36×48, and that will give the number of ends in the warp, which figures out 1,728. You must have extra ends for the selvage, but in figuring the reed, the selvage is disregarded, so that gives 864 ends (1728 divided by 2), reeded 2 to the dent. The spread in the reed, 39.19, divided into 864, gives a 22 dent reed, and this is what is used on this fabric, he said. Taking the 96 sley drill, and working it through in the same way, gives a 30 dent reed. Mr. Sweeny repeated that in figuring a new construction, it is of course necessary for a man to have some experience tables on similar constructions in order to arrive at the take-up.

In connection with the subject, Mr. Gaffney explained that at Sibley, Mr. Ellis is reproducing a 64-sley fabric, with 14s warp, that was originated by another mill; that the other mill makes it to a 40½-inch width, and matching it end for end, Mr. Ellis consistently produces it a little better than 41 inches wide. Mr. Ellis is making the goods on 60-inch looms, and the other mill uses 42- to 45-inch looms, it was explained.

George S. Elliott suggested another rule for figuring the reeds. Taking the 48-sley goods, reeded 2 to the dent, gives 24 dents; if the contraction is 6 per cent, then multiply 24 by 94 per cent, and you have it. If the contraction is 8 per cent, multiply by 92. "But," he said, "you must as Mr. Sweeny says have an experience table on contraction. The twist in the yarn plays an important part. We happen to have a style of 48 sley, and we used 24s filling in it, and, with the same warp, we dropped the filling down to 15s, and it made a big difference in the width of the cloth. Generally speaking, if you know the contraction, and divide the number of ends by the ends per dent and multiply this by (100 minus the percentage of filling contraction) you are as close to the correct dents per inch in the reed as any way you can figure it."

The reply submitted by A. D. Elliott was, "The method I would use on the two reeds mentioned in the question is: for the 48-sley I would multiply 48 by .95 and divide by 2, which gives 22.80 dents; on the 96-sley I would multiply 96 by .95 and divide by 3, giving 30.40 dent. I do not believe this is the usual method as I have encountered several men who subtract 1 from the sley before figuring the reed. In my experience, my method gives a full count whereas the practice of subtracting 1 gives a count slightly under the desired sley."

Mr. Platt pointed out that some mills in figuring reeds use a practice of discarding the decimals and going to the nearest ½ number. Mr. Gaffney stated that in one of the South's fine goods mills, the practice is to go to the nearest ¼ number. George W. Murphy said they go to the nearest ½ number on sheeting, but that this is not recommended for ducks, etc., where the sley is more closely specified.

Air Space in Reeds

"In ordering reeds, do you specify the air space desired? What method do you use for determining the air space required?" was the next question. P. W. Ellis stated that, "I do not specify the air space; but ask them to give me all they can." R. L. Zachry, assistant superintendent, Fulton Bag & Cotton Mills, stated that he specifies 65 per cent air space on his reeds for sheeting. Mr. Platt stated that reed manufacturers had told him that 66 per cent air space was as high as reeds had been furnished.

G. S. ELLIOTT, superintendent and manager of Pacolet Mfg. Co., New Holland, Ga., the retiring general chairman . .

E. H. Rogers, agent, Fulton Bag & Cotton Mills, raised the question, assuming the thickness of the dent was not affected, whether it is possible, purely from a weaving standpoint, to get too much air space. Arthur W. Harris, of Harris Mfg. Co., reed manufacturers, was called upon, and stated that "a good many mills all ask for as much weaving space as possible, but at Trion, Ga., they have made a definite record of all weaving space, and they are not inclined to find that the largest weaving space gives the best possible results. Most mills use from 56 to 58 per cent weaving space provided it doesn't crowd the warp." In this connection, the report submitted by A. D. Elliott of Trion follows:

"I do not know of any actual method of figuring air space, and have used the direct method of feeling the yarn in the reed, considering it properly air spaced when the yarn can be moved freely in the dent not binding nor loose enough to move sideways in the dent when weaving. Air space is a very important thing to be considered when buying reeds. When we buy reeds we specify air space and check the reeds before putting them in the looms. This is particularly important when ordering replacement reeds or additional reeds to be used with reeds already on hand. The reason for this is that it is practically impossible to get the same face and appearance on cloth with reeds of different air space. I remember one time putting a new fabric on some looms, using reeds that were in stock. After getting the looms changed I noticed that while some of the cloth looked very good, certain looms were making reedy cloth. After checking everything on the looms we finally checked the

reeds and found that on the looms making reedy cloth, the reeds contained about 62 per cent air space as compared to 52 per cent on the looms making good cloth. On another occasion we tried to use some reeds from stock that did not contain sufficient air space to allow the yarn to move freely in the dents, and it was finally necessary to order the proper reeds as the looms ran very badly."

Glee B. Thompson, of Pioneer Atlanta Co., reed manufacturers, was called upon, and stated that "most mills just give us the number of the warp yarn and the number of warp ends to the dent, and then we have some idea as to air space. You can put too much air space in and weaken the reed. We find about 56 to 58 per cent air space the best." Mr. Harris suggested that since many mills order reeds from different sources, a good idea is to send a sample of the reed desired as a precaution to insure uniformity.

Using Pickers Bored for the Shuttle

"What has been your experience with using pickers already bored for the shuttle?" was the next weaving question submitted by the chairman, who called on H. G. Hodge, overseer of weaving, Muscogee Mfg. Company.

"I do not know very much about using pickers that have not been bored," replied Mr. Hodge. "I find you can set pickers better with pickers already bored and they do not wear so bad."

"Will anyone who has found it especially advantageous to have your pickers already bored give us your experience?" requested Chairman Platt. "Is it better to have them bored, or is it not?" He called upon J. M. Williams, overseer of weaving at Aragon.

"A right smart depends on whether you are going to change shuttles," replied Mr. Williams. "If you do, it is all right to have them bored, but it is my experience that if you do not change shuttles at the same time, it is better to let the loom fixer do his own boring. If not, the hole will be too high or off one way or the other on account of the wearing of the shuttle. If you put in a new shuttle it is all right; if not, you had better bore them yourself."

"Mr. Elliott, will you touch up on that a little?" requested the chairman.

"We have been very much interested in this picker that is already bored," replied George S. Elliott, "because we feel it is doing away with a certain amount of inability on the part of fixers to bore them correctly. Since we have been playing around with these pickers on a small scale, we have several loom fixers who like them fine, and we have others who are just the opposite and do not like them. There are several good points both ways. It is a question of whether you can gradually develop your men to utilize the good points of the bored picker. If you get a picker that is bored with sufficient adjustment of the hole so an old shuttle can be centered without the bottom of the picker rubbing on the picker stick guide, it means when you have a new shuttle put in naturally you have sacrificed some of the material in the bottom of the picker. If you have it bored low you sacrifice in order to meet with the old shuttle, and it is hard to get it set on a new shuttle.

"The pickers that are put in with a good setting appear to me to have a closer fit when the knurl comes into the hole; it seems like it more or less grips it around the sides and therefore it is more or less adding more frictional contact. Another good point is that it has a tendency to make the loom fixer keep his picker sticks in parallel and also in perfect alignment with the reed. I think the disadvantage is probably when you put the picker in with an old shuttle and to have the picker fit you sacrifice stock in the picker. Some men get them full, and trim them off for an old shuttle.

"Other than that, I am watching this picker with a great deal of interest, and I think it would pay us all to put in a few and watch them, and put good men on them. It is not the same as putting in an old picker. We do not know how many pickers are ruined before they ever pull the handle to start up the loom. But if you can have the pickers properly bored, and then train the men to set the loom with them, it strikes me that it has a great deal of possibilities. I am watching them, and hope the rest of you will."

Changing Pickers with New Shuttles

A show of hands was asked on the next question: *"Is it best to change pickers when putting in a new shuttle?"* It was indicated that there was about divided opinion on the question, and there was no discussion.

R. P. Sweeny asked, "How long should spacer wires in harness last, and do you leave the spacer wires in?" Mr. Balentine replied that they use the drawing-in machine on their warps, not saving old patterns, and they leave the spacers in, pulling them to the top. He said the spacer wires will last for the life of the harness provided the weave room humidity is not too high.

Using Fixers for Overhauling

"Do you use your regular fixers for overhauling, or do you have special men for overhauling? Why?" was the next question. Most of the men indicated it as their practice to have the overhauling done by special hands. As to putting in rocker shafts, most of those present indicated this is done by the loom fixers as the shafts wear. Called upon, W. A. Powell replied that "we use our regular fixers for overhauling, but our looms are fairly new and we do not think it is necessary to have extra men yet awhile." He said that a general overhauling of the machinery should be carried out about once a year.

George S. Elliott said, "I think this is a big subject. If you have a bunch of looms that have been running steadily for 8 or 10 years, you recognize that they have been kept up only as was necessary (that is what is generally done, to replace a piece when it affects production or quality) and as it goes on, with so many small parts gradually wearing, it strikes me that on an average of every five or six years, a mill should have competent men to make a practice of going over each loom carefully. It would pay the mill because it would keep the looms in much better condition for quality and production. If a fixer has to run 70 to 150 looms, he is most interested in keeping those

looms running, and as time goes on, the rocker shafts, etc., gradually wear. I think that would come under the head of overhauling: checking up such things that the fixers cannot attend to. How many men have one or more men they keep on this type of work, or do you let it go for a number of years?"

George B. Moore said, "we bought 385 second-hand looms, and we put four men going over them and making the necessary improvements and adjustments. We have two men who regularly run sections most of the time but we take these two fellows and put them on this work, and of course our overseer checks behind them."

Loom Stops Near End of Bobbin

The last question was, *"Do you have more loom stops from filling breaks with bobbins about empty?"*

J. T. Shattles, overseer of weaving, Fulton Bag & Cotton Mills, said they have little of this trouble, and when it occurs it usually comes from bobbins being out of line. Mr. McGinnis of Columbus said that fur tensions in shuttles will help reduce this. George B. Moore said this trouble would be caused largely by the shuttle spring throwing the bobbin to one side; that he had taken some stock out of the shuttle near the eye which gave the yarn more room. W. A. Powell said they have more filling breaks as the bobbin runs down, due to an increase of tension on the yarn on account of the shuttle being too close to the yarn, loose bobbin grips, and bobbin grips out of line, and bad ends on the quills. He said they do not use a bunch on the filling.

George S. Elliott said, "we had considerable trouble with the bunches, where we ran feelers; the threads would get down on the back side of the bunch and break. We adjusted that and eliminated it. Another thing that we find makes for trouble with filling breaks on the butt is where we are using quill cleaning machines, and a lot of times the bobbin is struck by the knife and that roughs up the bobbin and the yarn hangs on it. Another cause was rough ends on the bobbins before we had tips put on them. We find there was not enough attention paid to the loom stops from this particular trouble, and if you will investigate it pretty thoroughly, you will find a lot of minor causes that can be eliminated."

This concluded the practical discussion. Mr. Elliott introduced L. L. Jones, general manager, Canton (Ga.) Cotton Mills, who spoke briefly. This session adjourned the meeting.

New Plant for Mathieson Alkali

The new $7,000,000 plant of the Mathieson Alkali Works at Lake Charles, La., will begin operations early in December, it was recently announced. According to company officials, construction work at the new plant is being maintained considerably ahead of schedule, despite the fact that it involves a number of engineering developments embodied in such a plant for the first time.

The Lake Charles plant, it was pointed out, will provide a new source of supply for soda ash, caustic soda and related heavy chemical products over a wide area in the South and Southwest. It will also permit the economical shipments of alkali by water to points on the Atlantic and Pacific seaboards, along the Gulf Coast, and on inland waterways including the Mississippi River and its tributaries.

In addition to rail service via the Southern Pacific, Kansas City Southern or Missouri Pacific and their connections, the plant includes a dock system for loading both barges and ocean-going steamers. These facilities will play an important part in bringing the consumer of alkali and his source of supply closer together from the standpoint of transportation costs.

Since its incorporation in Virginia in 1892 there has been a close relation between The Mathieson Alkali Works and industrial development in the South. With the completion of the new plant at Lake Charles, similar benefits will be extended to an important growing industrial area in the Southwest. The company also operates a third plant at Niagara Falls, N. Y., where caustic soda, anhydrous ammonia, liquid chlorine and chlorine products are produced.

* * *

"Garments for Industry"

"Garments for Industry" is the theme of one of the Boardwalk window displays at the Du Pont exhibit in Atlantic City. It features coveralls, jackets, trousers, caps, etc., dyed with du Pont dyestuffs, and worn by attendants of leading oil stations and employees of various industrial concerns. The fabrics are from Gregg Dyeing Co., Graniteville, S. C., and Sibley Mfg. Co., Augusta, Ga. McCampbell & Co., Inc., New York City, are selling agents for the fabrics.

The background for the display is striking. In the foreground, is a scene of a typical service station, which has been painted on Cel-O-Glass, eight by eight feet in size. To one side of the station and a little to the rear appears a refinery, while to the rear, and stretching off in the distance, is an oil field with the derricks rising in the distance and a range of hills overlooking the whole scene. The entire background is in high colors and is lighted from the rear, producing a most unusual window setting.

Garments bearing the name and insignia of oil and industrial concerns are shown throughout the window.

The contributing garment manufacturers include H. D. Lee Mercantile Co.; Cowden Mfg. Co.; Sweet-Orr & Co.; Eloesser-Heynemann Co.; and Riverside Mfg. Co.

* * *

Fabrics of "Cellophane" Slit Cellulose Film

An entire new line of fabrics for glass curtains and draperies has been designed by Donald Deskey and is being manufactured by Chicopee Sales Corporation. These fabrics will be distributed through F. Schumacher & Company. They are made of "Cellophane" slit cellulose film with cotton used as a filler to produce a chenille, a tweedy or a nub effect, as the decorative need demands. The background of slit cellulose film is in a natural transparent shade, with color introduced in the cotton yarn.

One of the glass curtains has a wavy looking hemp thread in natural transparent color producing an interesting texture design. Another makes use of cotton yarn to obtain several different types of nub weaves in any desired color. The third shows a chenille cotton yarn at wide intervals against the transparent background. A fourth carries out the vogue for roughness by using a vertical wavy line of cotton yarn in wool effect. A fabric especially suited for use as a combination drapery and glass curtain, obtains by unusual weave a tweedy effect, but with a luster. It is to be had in a complete color range.

CURRENT TEXTILE TOPICS. . . .

Talk of the Month

CONFIDENCE lost is a hard thing to regain. At the time of writing, the cotton industry was giving some signs of a broadening movement after the fall disappointment, but it had not been brought into a healthy condition of balance between production and demand. There was much of promise, in the constantly growing retail merchandise trade, but buyers continued to assume a cautious attitude because of other factors. The market for raw cotton failed to provide any support for cotton goods values. It was difficult to get prices moving out of unprofitable levels of price, with output for many weeks keeping above sale in spite of manifest substantial buyer requirements in sight.

Government Can Secure Support Only by Giving It

It will be recalled that the new Administration started out with the proposition that the Federal government would spend money to start the program of recovery from depression, with the aim gradually to shift the burden to private business. The delay in this transition, which may be laid to the manifold experiments with reform that have kept private business in perplexity, quickly killed a broad wave of confidence that swept the country and brought an incipient upward movement. These things are cited at this time for the reason that the Administration at last appears to be taking the view that government support for industry means government support by industry.

Cotton manufacture, as all industry, depends upon investment and that upon thrifty and enterprising individuals who are willing to take a risk for a possible gain. The nation in the long run must depend upon profits made by capital and labor for the means to carry on its own program. Government plans for the next Congress include steps toward unemployment insurance, and private individuals in one capacity or another must get returns from their efforts to pay for such protection, in one way or another. It is encouraging for the new year that the government which has given so much attention to the safeguarding of organized labor is giving reassurances of increased profits to industry. This may be due, incidentally, to the fact that the cotton and other associations have been more vocal about their rights and difficulties after going ahead silently for months in efforts to promote the national recovery program.

Among the notable developments in this respect was the formulation of the "platform of principles" of industrial relations adopted by the National Association of Cotton Manufacturers and the American Cotton Manufacturers Association (which was also distributed to other industries for their possible adoption). This set forth the duties and obligations both of management and labor for a fair basis of relationship. Whatever the influences that swayed the Administration, there appeared recently a tendency to veer away from support of labor insofar as the organized unions seemed bent upon domination of industry, whereas previously industry was much concerned over the indications.

Two months after the general strike truce, incidentally, it was apparent that the struggle with the U. T. W. was not a settled affair. In this connection, it may be pointed out that labor as well as government has a concern in the well being of industry and may over-reach itself to its own undoing. The demise of the Borden printing group was attributed by some in part at least to the attitude of labor, while rumors were heard that the maintenance of several cotton plants in New England and the South was in imminent danger from the same cause. As for the proposal by Francis J. Gorman for a cooperative marketing scheme, the industry not only was prone to suspect a move to secure general recognition of the U. T. W., but naturally to ask where labor had experience upon which to offer help in this direction.

In the vacillating movement of the recovery to date, there is a precedent for looking ahead to another active movement of cotton goods, which may be under way as this is published. The depression in this early retrospect apparently reached its low in 1932. It has had spurts upward, with one in 1933 of boom proportions and consequent severe reaction. A more sober but healthier advance in general trade has come this fall. Lack of buying and consumption of goods over a long period is a background for new purchasing in volume.

Meantime, problems are always with the industry and the cotton branch still has its full quota. The situation in raw cotton is uncertain. The processing tax hampers progress. A disturbing element of great concern is prison goods competition. Government efforts to relieve distress through establishing new plants for giving additional work are held to defeat their purpose by restricting output in regular private industry and thereby increasing unemployment therein. Cotton manufacturers face 1935 with plenty to occupy their minds.

New England Mill Situation

SIGNS of an improving market situation in the middle of November were found in the New England district as well as the primary center of goods distribution. The big mill news of the month, however, was the imminent closing of the American Printing Company and the Iron Works plant at Fall River, following the merger of M. C. D. Borden & Sons with the Pacific Mills in New York. Another big feature of the peroid was the establishment by the National Associa-

tion of Cotton Manufacturers of a liaison committee to act with the other groups of the industry on outstanding problems.

Up to mid-November the movement of goods had no great pick-up, but there was consolation in a little business suggestive of more in view of outside activity. The price remained an obstacle, buyers being low to get away from low levels that were prevailing in the dull fall market. Printcloths led the demand, but fine goods were also reported to be showing favorable signs. In this connection, there is at least talk of the day when quality will again be considered above price; but that, obviously, is contingent upon the transition away from depression.

After a period of tendency toward reconstruction of the cotton industry in New England, the announcement that the American Printing Company and the Iron Works group of mills would be closed shortly came rather as a bombshell. Columns of comment have been printed on the possibilities of continuing these plants at Fall River in one way or another, but the nub of the matter up to the time of writing seemed to be that the prospects were very dubious.

While the American Printing Company was preparing to wind up orders in hand and quit, the Pacific Print Works were getting ready to start up additional printing machines at Lawrence. The output is expected to be expanded materially as a sequence to absorption by the Pacific Mills of the Borden lines. The acquisition of the Borden line and the plans for discontinuance of work at Fall River is accepted as a strengthening factor in the printing field, but it has caused anxiety in Fall River by forcing over 3,000 workers to seek new employment.

Whether in the case of the Borden mills it can be justly stated that the attitude of the workers has hastened the action of the management in its plans to withdraw from the field is a question. There are signs, however, that mill management cannot be forced to accept all the dictates of aggressive unions. Only recently the president of the Hamilton Woolen Company, Southbridge, Mass., said that he would recommend the closing of the plant and liquidation of the business if the walk-out of 125 workers continued.

Motivated by the many national problems of the cotton industry, the National Association of Cotton Manufacturers at its annual meeting took measures toward forming a policy committee which should act as a liaison agent with the southern group of mills; also as an advisor to the Code Authority and to the board of government of the N. A. C. M. On the committee are: Dexter Stevens (chairman), Esmond Mills, Esmond, R. I.; Lincoln Baylies, Nashua Mfg. Co., Nashua, N. H.; L. H. Ballou, Kendall Company, Walpole, Mass.; C. F. Broughton, Wamsutta Mills, New Bedford; E. G. Chace, Berkshire Fine Spinning Associates, Fall River; Frank P. Coolidge, Durfee Mills, Fall River; Philip Dana, Dana Warp Mills, Westbrook, Me.; Ernest N. Hood, president of the N. A. C. M., ex-officio.

By reason of an order from the government for 2,300,000 yards of cloth, the Nashawena Mills of New Bedford is assured of steady operation through the winter for something like 2000 workers. The contract calls for deliveries over a period of six months. It was given early in November, but the use of special cotton made necessary some weeks of preparatory work. This does not require the entire output of the plant, but as stated by William B. Gardner, treasurer, it supplies "a splendid backlog of work which will keep us going steadily through the winter and spring and will probably make it possible for activities to be maintained to the full extent of our operating budget."

It was reported recently that the General Cotton Corporation had offered $23.50 a share for all the outstanding stock of the Potomska Mills Corporation, New Bedford, and that another offer of $20 a share had been made. The plant has over 100,000 spindles and 2700 looms. The company is capitalized at $1,200,000. The president, John M. Bullard, declined to confirm or deny that the directors were considering offers.

Incidentally, the General Cotton Corporation, Fall River, in a recent notice by directors regarding proposed plans for reduction of capital stock, announced that the company was ready if the opportunity presented itself to acquire companies for the purpose of continuing manufacturing operations. It has been engaged in acquiring, salvaging and selling machinery of various mills.

What the Southern Mills Are Doing

Enterprise Cotton Mill plant, Enterprise, Ala., has been sold to D. H. Morris, Jr., president of the Geneva Cotton Mills, Geneva, Ala., and Joel E. Johnson, vice-president of the Citizens Bank of Geneva. The plant, which has been closed down for some time, will be placed in operation by the new owners.

Scottdale Mills, Scottdale, Ga., have installed 440 double-shift pick counters purchased from Waltham Watch Company through Terrell Machine Company.

Joseph R. Morton & Company, Burlington, N. C., have let contract for the erection of a silk throwing plant representing an investment of approximately $200,000. The building will be 60x228 feet, two-story and basement, of mill type construction, and the plant will have a weekly capacity of 10,000 pounds of hosiery tram. Associated with Mr. Morton are the May Hosiery Mills, Inc., and McEwen Knitting Company, and it is understood that the first production of the throwing plant will be for these organizations.

Wampum Cotton Mills, Lincolnton, N. C., which have been idle for several months, will be re-opened by a group of new owners, headed by W. W. Glenn of Lincolnton.

Eastern Cordage Co., Inc., Raleigh, N. C., have petitioned for charter to manufacture twine, yarn, cloth, etc. The authorized capital stock is $100,000. B. W. Jones of Greensboro, and Murray Allen and R. Pearson Upchurch of Raleigh are among the incorporators.

Liledoun Mills, Inc., Taylorsville, N. C., have petitioned for textile manufacturing charter. The authorized capital is $100,000, with R. S. Ferguson and Sue Ramsey Johnston Ferguson of Taylorsville, and R. G. Cherry of Gastonia, among the incorporators.

Quality Hosiery Mfg. Co., Murfreesboro, Tenn., have been organized to start operations shortly. Oliver N. Norris, formerly of the Sunshine Hosiery Mills, is president; Floyd Norris and T. A. Moore are vice-presidents, and G. A. Maxwell is secretary-treasurer.

COMMENT ON THE COTTON MARKET

New Orleans, November 16, 1934.

NOTWITHSTANDING the continuance of daily small sales of raw cotton in the South, which is reflected in the continuance of light exports and spinners' takings of American, the cotton market, due largely to the government's 12-cent loan plan resulting in much cotton being held off the market, ruled comparatively steady during the past month, Middling in New Orleans ranging from 12.74 to 12.34, being quoted today at 12.61, slightly lower compared with one month ago.

Prospects for this year's American crop increased 191,000 bales during October, which increase, however, was offset by a reduction of 200,000 bales in the foreign crop outlook. There was a revival in inflation talk, but this subsided with the lifting of restrictions in trading in foreign exchange and export of gold since it may serve to prevent further devaluation of the dollar. A development of no little importance was the Administration's move to increase credit expansion in the interest of expanding commerce and industry.

Progress of the American Crop

The government report, as of November 1st, indicated a crop of 9,634,000 bales versus 9,443,000 as of October 1st this year and last year's final figures of 13,047,000 bales. Meanwhile there were some heavy to killing frosts and damaging low temperatures in the eastern half of the belt, which probably put an end to any further addition to the crop in that section. But in the Southwest the weather was milder, and something of a light top crop may be made in that area.

INDICATED WORLD'S PRODUCTION OF COTTON

Lint—Bales—	This season	Last season
American	9,634,000	13,047,000
Foreign	12,925,000	12,615,000
All kinds	22,559,000	25,662,000

World's Consumption of Cotton

The New York Cotton Exchange service estimates the world's consumption of lint cotton for two months, August and September, as follows:

Bales—	This season	Last season
American	1,828,000	2,457,000
Foreign	1,987,000	1,765,000
All kinds	3,815,000	4,222,000

October domestic consumption returns were much better than for September of this year when consumption was very small as a result of the textile strike at that time. The large increase in the number of spindles in operation during October, and the recent more favorable reports as to large sales of cotton goods in Worth Street, and the late better trade advices from Manchester, appear encouraging as to the future.

BRITISH BOARD OF TRADE REPORT FOR OCTOBER

Year—	1934	1933	1932
Exports of yarn, pounds	11,000,000	12,000,000	11,000,000
Exports of cloth, yards	176,000,000	156,000,000	138,000,000

UNITED STATES CENSUS REPORT FOR OCTOBER

Bales—	This season	Last season
Consumption of lint cotton in Cotton Growing States, October	410,543	405,175
In New England States, October	88,559	83,609
In All Other States, October	21,208	15,271
In United States, October	520,310	504,055
Consumption of lint cotton in Cotton Growing States, 3 months	989,706	1,271,314
In New England States, 3 months	193,901	271,863
In All Other States, 3 months	53,612	49,262
In United States, 3 months	1,237,219	1,592,439
Mill stocks, October 31st	1,139,721	1,363,343
Stocks in public storage and warehouses, October 31st	9,381,428	9,474,446
Stocks in mills, public storage and warehouses, October 31st	10,521,149	10,837,789
Stocks in mills, public storage and warehouses, September 30th	8,672,884	8,535,716
Active spindles during October	25,095,480	25,883,836
Active spindles during September	22,112,888	25,993,140

RECEIPTS, EXPORTS, SPINNERS TAKINGS AND STOCK AT U. S. PORTS

Since August 1st— Bales—	This season	Last season
Receipts at all U. S. ports	2,628,000	4,157,000
In sight (marketed)	5,345,000	7,625,000
Exports from U. S., including Canada	1,706,000	3,024,000
Spinners' takings	3,358,000	4,834,000
Stock at all U. S. ports today, Nov. 16th	3,171,000	4,014,000

WORLD'S VISIBLE SUPPLY OF COTTON, NOV. 16

Bales—	This year	Last year
American	7,595,000	9,505,000
Other kinds	1,944,000	1,599,000
All kinds	9,539,000	11,104,000

While the smallness of exports and spinners' takings of American is attributed largely to foreign spinners using more of outside growths at the expense of American because of the larger supply and relative cheapness of foreign cotton, the impression prevails in some quarters that exports and spinners' takings, the latter having made a better showing of late, may make a better showing during the remainder of the season.

The stock at all U. S. ports today is comparatively light for this time of the year, the movement to the ports will probably continue comparatively small, and should the export movement and spinners' takings improve, there may develop a very tight spot situation later in the season, especially if the government continues to hold cotton largely from the market.

Aside of this feature, the future course of values will probably depend very much on the nature of the government's cotton control program for 1935, particularly as regards next years acreage, and developments in connection with the Bankhead bill, especially if something is said in relation to its loan policy. It is expected that considerable opposition will develop against the continuance of the Bankhead Act. Therefore, at present, the trade is very much at sea as to what the government cotton control program will be for next year's crop.

Cottons for Christmas

"Cotton Flashes", merchandising bulletin distributed to retailers by the Cotton Textile Institute of 320 Broadway, N. Y. C., indicates that the coming holiday season is to be more than ever a Cotton Christmas. Cottons are no longer to be merely classed as staples. There are many well-styled fashion items, adaptable for smart, practical and inexpensive gifts, offering a wide range of choice both to those who wish to "make their own" gifts and those who prefer them "ready to send".

The bulletin suggests that highly colored posters showing "gifts to make" can be displayed advantageously in wash goods departments immediately. The promotion of cotton yarns should bring good results to art embroidery and needlework sections.

It goes on to point out the number of cotton ready-to-wear items that can be offered as gift suggestions in men's women's and children's apparel departments.

Cottons for use in bedroom, bathroom, kitchen and closet, from rugs and draperies to towels and sheets, should be highlights of the home furnishings group for the next two months.

The bulletin also presents a number of valuable suggestions for the merchandising and display of cotton goods for the holiday season as well as several uses for cotton for inexpensive Christmas decorations of stores.

* * *

Modern Coal Burner Acquired by Link-Belt

Modern Coal Burner Co., a subsidiary of Peabody Coal Co., has relinquished its automatic stoker business, and Link-Belt Co., 910 S. Michigan Ave., Chicago, has acquired manufacturing and sales rights to the Modern coal burner. These stokers will be added to the Link-Belt line, it is announced by Max H. Hurd, vice-president of Link-Belt Company.

STEADY, STRONG AND TRUE!

Matched Sets of Belts Produce a Balanced Drive

• • •

GOODYEAR EMERALD CORD MULTIPLE V-BELTS

It is important to you that your multiple V-drives should be equipped with accurately matched and balanced sets of belts.

That is a real factor in uniform and high-speed production with a minimum of waste and trouble.

Goodyear Emerald Cord V-Belts are designed and built with an experienced eye to those requirements. Their advantages include the following:

1 — Uniform length.

2 — Absolutely accurate cross-section so they fit properly into the sheave groove.

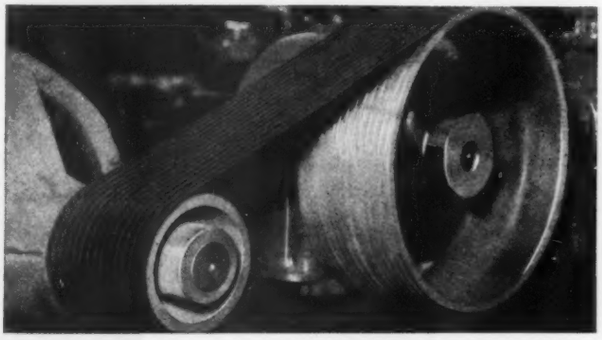
3 — Low stretch and uniform elasticity.

4 — Load-carrying section concentrated at neutral plane so as to be subject neither to extreme tension nor compression when flexing over the sheaves.

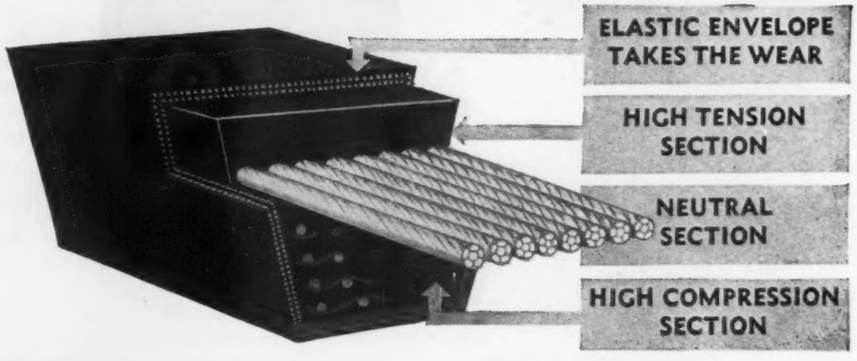
5 — Long flexing life and high resistance to fatigue.

Like all Goodyear Mechanical Rubber Goods for textile mill service, Goodyear Emerald Cord V-Belts are specified to the individual drive and plant operating conditions by the G.T.M.—Goodyear Technical Man. The G.T.M. brings a wide, practical experience with textile mill needs to his job of analyzing drives and specifying belts and hose.

It may pay you well to discuss your requirements with the G.T.M. You can get in touch with him through Goodyear, Akron, O., or Los Angeles, Cal., or by calling your nearest Goodyear Mechanical Rubber Goods Distributor.



Goodyear is represented in the South by authorized Goodyear Mechanical Rubber Goods Distributors conveniently located with relation to your mills and able to supply promptly all Goodyear Mechanical Rubber Goods for the textile industry



NRA CODE

THE GREATEST NAME IN RUBBER

GOODYEAR

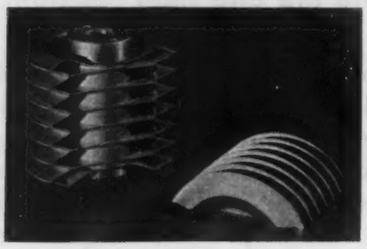
TEXTILE BELTING

MADE BY THE MAKERS OF GOODYEAR TIRES

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

New Re-Inforced Sheave

Under the name of Duro-Brace Texsteel sheave, the texrope division of the Allis-Chalmers Mfg. Co., is introducing a new re-inforced steel sheave. The outside walls are re-inforced by



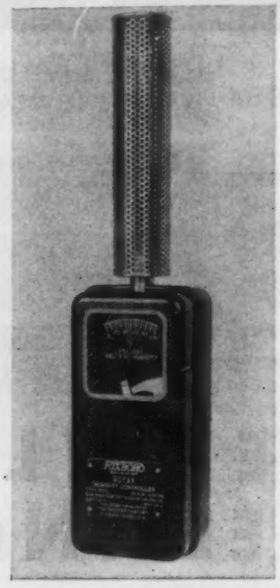
New Sheave

a convex steel plate to strengthen these vulnerable areas and eliminate the possibility of distortion, irrespective of strain, it is pointed out. Welding at the rim and web, for additional strength, and interior grid-type construction, for rigidity—features of the former design—are retained.

* * *

Indicating Relative Humidity Controller

The Foxboro Company, Foxboro, Mass., have announced the development of the Rotax indicating relative humidity controller, in which, it is pointed out, the accuracy of the Foxboro membrane type humidity recorder is combined with the Rotax



Humidity Controller

type contacts to form an electrically operated humidity controller; the combination making available several features not obtainable previously.

The controller may be located conveniently wherever electric current is available. It maintains humidity by operating solenoid valves and motor valves on water, air and steam lines. The relay set required for this is located inside the case. It may be used to operate unit heaters, control dampers, air washers and other air conditioning apparatus. The standard Foxboro Rotax contacts are used in this instrument, which has a range of from 0 to 100 per cent humidity and is designed for use between 10 and 120 degrees F.

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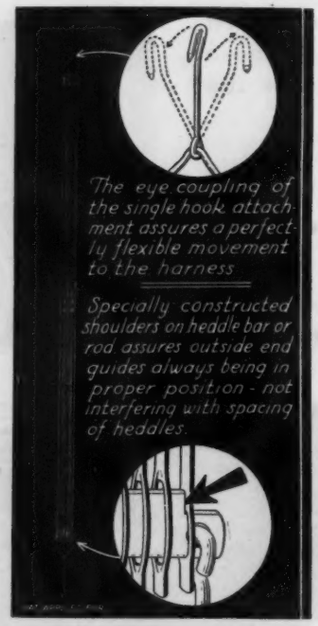
New Selvage Harness

Steel-Heddle Manufacturing Co., 2100 West Allegheny Ave., Philadelphia, Pa., have announced a new and unique selvage harness, scientifically designed,


The eye coupling of the single hook attachment assures a perfectly flexible movement to the harness.
Specially constructed shoulders on heddle bar or rod assures outside end guides always being in proper position - not interfering with spacing of heddles.

Selvage Harness

operated in conjunction with a standard selvage motion. An eye coupling of the single rod hook attachment is to assure perfect alignment through a perfectly flexible movement. A specially constructed shoulder on the heddle bar or rod is used to assure the outside end guides always being in proper position and not interfering with the spacing of the heddles.

The new selvage harness is a separate, self-contained unit, quickly attachable and detachable. The length is governed by the fabric and loom condition. It is equipped with the latest type of flat steel heddle, and is suitable for the weaving of cotton fabric.

* * *

New Cot for Top Clearers

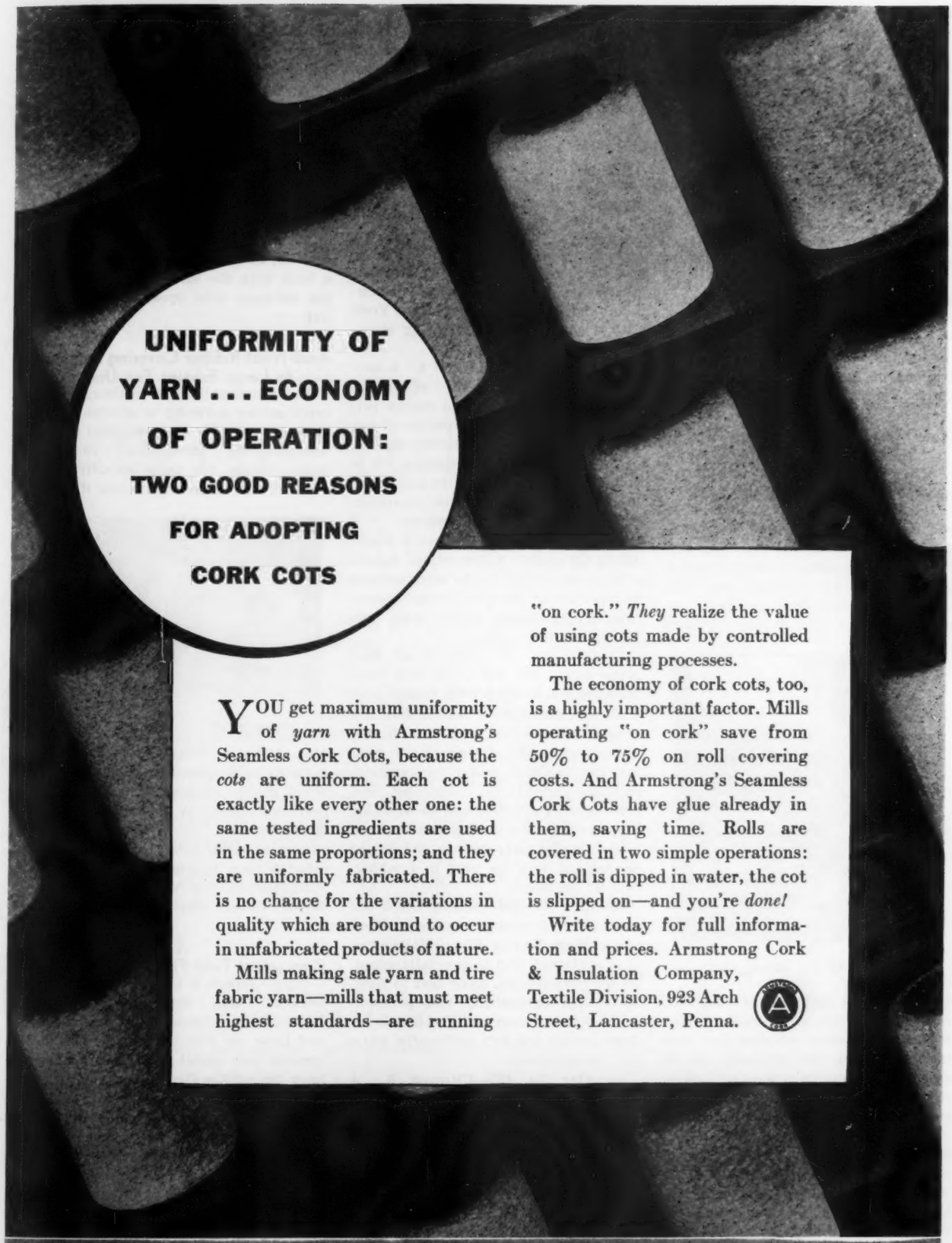
A. C. Lawrence Leather Company, Peabody, Mass., report progress in the application of the new Lambswool cots for top roll clearers. These clearer cots are made of lambskins tanned with the wool on so that the foundation of the cot is leather, with all the qualities of this product. The wool fibres, which are very dense, maintain in the tanned skin the upright position in which they grow from the skin in the living animal, it is pointed out; thus giving a brush-like action for high efficiency in cleaning rolls; the density maintaining the erect position throughout the life of the cot, with no matting up. The collected waste is tightly anchored, it is explained, so that less picking is required and the waste is held firmly to prevent its dropping into the yarn.

* * *

"Uniform Cost Methods" for Finishing Plants

The National Association of Finishers of Textile Fabrics, 40 Worth Street, New York City, have prepared and published a book "Uniform Cost Methods", which fills a long-felt need in the industry. In the foreword of the volume, written by Albert L. Scott, president, it is explained that a large part of the cause for demoralization of price "arises from the fact that many plants do not know what their costs are." The foreword continues, "Rapidly increasing taxes, hours of labor and rates of pay arbitrarily fixed by government action, the effect of processing taxes, curtailment of output, the demands of organized labor, all arose almost overnight and tended to increase costs in unusual and unforeseen ways."

The association felt that one of the greatest services possible would be the development and use of accurate cost systems in every plant, and to that end, through its cost committee, retained a recognized cost accountant and offered his services to the association members at cost. Believing that a manual giving in simple and untechnical language the composite cost wisdom and experience of the best minds in the industry, would largely remedy the widespread confusion in the industry on the subject, the book under review was the result. The book was prepared under the direction of the as-



UNIFORMITY OF YARN . . . ECONOMY OF OPERATION: TWO GOOD REASONS FOR ADOPTING CORK COTS

YOU get maximum uniformity of *yarn* with Armstrong's Seamless Cork Cots, because the *cots* are uniform. Each cot is exactly like every other one: the same tested ingredients are used in the same proportions; and they are uniformly fabricated. There is no chance for the variations in quality which are bound to occur in unfabricated products of nature.

Mills making sale yarn and tire fabric yarn—mills that must meet highest standards—are running "on cork." *They* realize the value of using cots made by controlled manufacturing processes.

The economy of cork cots, too, is a highly important factor. Mills operating "on cork" save from 50% to 75% on roll covering costs. And Armstrong's Seamless Cork Cots have glue already in them, saving time. Rolls are covered in two simple operations: the roll is dipped in water, the cot is slipped on—and you're *done!*

Write today for full information and prices. Armstrong Cork & Insulation Company, Textile Division, 923 Arch Street, Lancaster, Penna.

Armstrong's Seamless Cork Cots

FOR SPINNING AND CARD ROOM ROLLS

sociation's cost committee, consisting of G. A. McClatchie, U. S. Finishing Co.; R. O. Cooke, Joseph Bancroft & Sons Co.; M. McKenzie, Sayles Finishing Plants, Inc.; N. E. Yale, Bellman Brook Bleachery Co.; and M. R. Zutter, Slatersville Finishing Co.

The preparation of the manual was carried out under the immediate direction of Oscar B. Graichen, cost accountant for the association, in consultation with Frank S. Harris, treasurer of Lockwood Greene Engineers, Inc., with C. E. Murray as special advisor.

The book is a complete, easily read and understood discussion of cost methods, involving process and expense items, etc., and covers printing, engraving, dyeing, etc., etc. It has many illustrations of forms for use in keeping costs. The price is $1.00 per copy.

* * *

New Machine for Attaching Facing Strips to Knitted Undergarments

A new industrial type of sewing machine of special design, designated as Style 51700E, has been announced by the Union Special Machine Co., Chicago, Ill., for folding and attaching button-hole facing strips to knitted undergarments. This development was occasioned by the difficulties commonly encountered in getting facing strips to

—for attaching facing strips

lie flat without puckering or wrinkling. Study of previous methods, the manufacturers announce, revealed that such uneven finishes were generally the result of variations in tension applied by operators in trying to get the strips to come out even with the body fabric.

The design of the new machine minimizes the need for manual control of tension by making the feeding automatic. The feeding mechanism consists primarily of the regular flat feed dog, plus two roller feeds geared at the end to an idler gear.

In operation, the facing strip passes around the lower feed roll and then over the regular flat feed dog which is power driven. The rotation set up in the lower feed roll is transmitted to the upper feed roll which serves as an auxiliary feed for the knitted body fabric. These synchronized movements, it is explained, result in uniform feeding action and proper gathering, or take-up, effect, on the elastic knit fabric. In other respects, the new machine corresponds closely to previous models in Union Special's line of 50000 series flat bed double lock stitch machines.

* * *

Ciba Circulars and Color Cards

Society of Chemical Industry in Basle, through Ciba Co., Inc., Greenwich and Morton Streets, New York City, have issued the following circulars and sample cards:

Circular No. 413—Silvatol I. A new preparation for the removal of tar and machine grease spots from fabrics prior to scouring, used in solution of water. Circular No. 423 describes the use of this material in dry cleaning. It is pointed out that its features are longer life and less residue in the separator. On white goods, no tint remains.

Circular No. 414 — Cibacete Diazo Black GN powd. A non-soluble dispersion corresponding to the water-soluble G type, but of superior dyeing properties, giving deeper shades with less tinting of other fibers.

Circular No. 421—New Wool Fast Navy Blues MG conc. and MR conc. These are best dyed with formic acid with the addition of Neolan Salt II, then exhausted and boiled with sulphuric acid; the dyeings have good fastness to light, water perspiration, stoving, carbonizing, decatizing, hot pressing and alkalies, and to washing. The two types are distinguishable from each other by their greener and redder shades and may be used in combination as desired.

Circular No. 424—Neolan Black SR conc. This furnishes a more brilliant shade than Neolan Black WA extra, it is explained, and is especially adapted for piece dyeing, being fast to light, decatizing, carbonizing and perspiraton. Cotton, rayon and acetates in effect threads are left sufficiently white for all purposes.

Circular No. 425—Ultravon K. A new textile auxiliary for scouring operations used in conjunction with soap, which inhibits the formation of lime and other mineral soaps. It is especially recommended in scouring where there are difficulties due to a calcareous water supply, and for rinsing baths to remove lime soaps remaining in the goods.

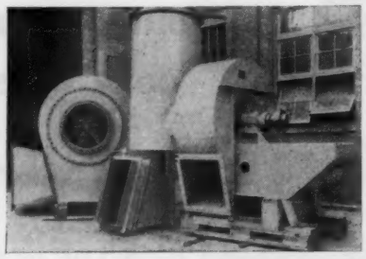
Sample Card No. 1166—Special Dyes for Mixed-fiber Fabrics. This card contains 126 dyeings on half-wool, on half-wool with acetate effects, and on half-wool with silk and viscose effects. Besides the ordinary union dyes, there are shown the union fast dyes and the Polytex colors, including Polytex fast colors, giving a variety of solid shades on a diversity of fiber combinations as well as two and three-tone dyeings.

Sample Card No. 1191—Neolan Colors, Mode Shades. This card shows a variety of fashion shades on wool flannel, fast to washing, light and perspiration. The Neolans, it is explained, produce lively tones, with easy leveling and simple dyeing. By the use of Neolan Salt II it is possible now to dye in a bath with the same acid content as for ordinary acid dyes, it is pointed out.

* * *

Acid-Proof Rubber Covering Applied to Large Exhaust Fan Unit

The practicability of utilizing acid-proof rubber covering to eliminate destructive corrosion is exemplified in the accompanying illustration showing large exhaust fan units recently rubber covered by The Manhattan Rubber



Acid-proof rubber covering

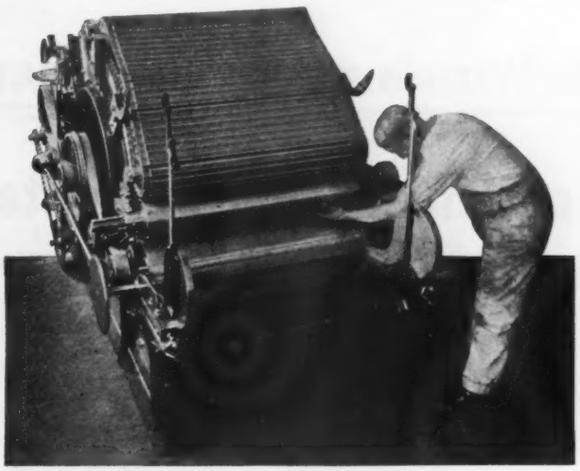
Mfg. Division, Passaic, N. J. This covering is a specially-developed acid-proof rubber compound applied by a perfected process to the metal surfaces of the fan unit. The process of uniting rubber to metal holds the rubber covering in place so tenaciously that after vulcanization, the cover cannot be removed without tearing and destroying it.

* * *

Convenient Twist Finder

Alfred Jepson & Son, P. O. Box 128, Decatur, Ga., representatives for Reeves Pulley Company, have compiled and have for free distribution a convenient and useful vest-pocket calculator for readily finding turns of twist when twist multiplier and yarn number are known. It is made in two ranges, one covering yarns from 5s to 34s, and the other covering 35s to 64s. A slide carrying a table of turns per inch is fitted into a cover, and when any yarn number is moved to appear in an opening in the cover, the turns per inch twist may be read for any customary multiplier from 3.00 to 5.00. Mill men may secure copies upon application by stating the range of yarns which they desire the calculator to cover.

"See that little gadget?"



It turns idle cash into PROFITS

Surplus in the form of cash may yield 1½ to 2%—but invested in Saco-Lowell Continuous Card Strippers it will yield 50% or more. This improvement cannot fail to pay for itself within two years. By keeping the cylinder wire in a constantly clean condition, the long fibers which formerly were lost as strips are now retained as sliver. From a given amount of cotton, up to 2% more weight of sliver is obtained.

Even this substantial saving is secondary to the improvement in QUALITY. The sliver is noticeably cleaner because the cylinder wire is constantly maintained in a clean, free-working condition. There is greater evenness of sliver because the customary light-to-heavy fluctuations between periodic strippings are eliminated.

The Continuous Card Stripper is employed with profit by producers of all classes of goods, as indicated by the following partial list of users:

Swift Spinning Mills	Columbus, Ga.
Cosmos Imperial Mills	Hamilton, Ontario
Riverside & Dan River Cotton Mills	Danville, Va.
Cannon Mills	Kannapolis, N. C.
Mt. Vernon-Woodberry Mills	Columbia, S. C.

Shall we mail you our Continuous Stripper Bulletin?

Continuous Card Stripper

SACO-LOWELL SHOPS

147 MILK STREET, BOSTON, MASS.

CHARLOTTE, N. C. GREENVILLE, S. C. ATLANTA, GA.

WITHIN THIS SPREAD - BETWEEN THE POWER AND THE

"Gentlemen, your preventable power wastes may cost enough to pay your preferred dividend."

"MOST plants, gentlemen," said the man with the Red Book—"can cut their power costs at least twenty per cent, some as high as fifty per cent. Throughout industry, you can figure power costs at from four to ten per cent of total manufacturing costs. I am quoting a leading authority* when I say that therefore '... *manufacturing costs can be cut from one to five per cent ... (and) the savings will in many cases exceed the entire net profit of the business.*'"

Who is the man with the Red Book? He may be a power engineer, a consultant, or a member of one of our Power Transmission Clubs.

He will tell you to forget about what you pay for power at the meter. It's in the spread between the meter and the machines where power costs are wasted and hidden profits lie. These losses can be controlled. They show up in the cost of power *delivered to the production machines* and that depends on the methods used to transmit power to the machines.

He will ask you to compare the investment cost per installed horsepower of small individual motors for Unit Drives and large motors for Group Drives—and to consider the carrying charges which must be added to your power bills (see graphs at right of which there are many more in the Red Book, sent upon request).

*Power

WORK—IS A SOURCE OF PROFIT IN MANY PLANTS . . .

He will agree with you that Unit Drive with small high-cost motors is necessary for many machines and departments regardless of higher investment, maintenance and power costs. But he will point out that, where conditions permit grouping of machines with each *grouped production unit* powered by a larger, more efficient motor, Modern Group Drive not only offers definite advantages but important savings in first cost, maintenance cost and power costs. Although case studies prove this, he will ask for an opportunity to study your production requirements before submitting a planned recommendation.

Do not wait for this man to call—send for him. Ask us for a Roster of the Power Transmission Club membership. In the meantime, why not get a copy of the Red Book which is "a practical analysis of some fundamentals of Industrial Power Transmission." Write for it today.

POWER TRANSMISSION COUNCIL
(*Sponsored by Mechanical Power Engineering Associates*)
An association of producers and distributors of power, power units and mechanical equipment for the transmission of power.
370 LEXINGTON AVENUE, NEW YORK

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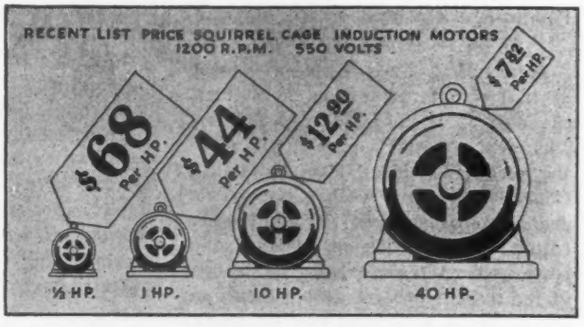
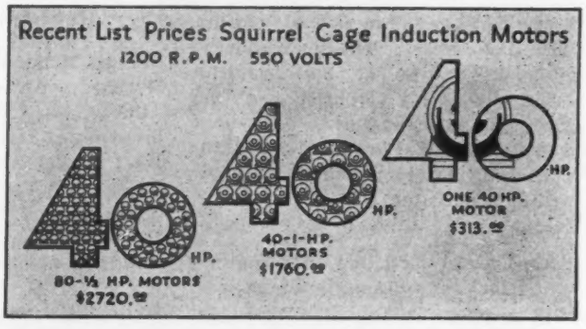
The group photograph in this advertisement is a scene from a sound-film demonstration of Modern Group Drive as an economic principle in power transmission. Duplicates with projection facilities are available at all of our 54 Power Transmission Clubs. Ask to have it shown in your plant.

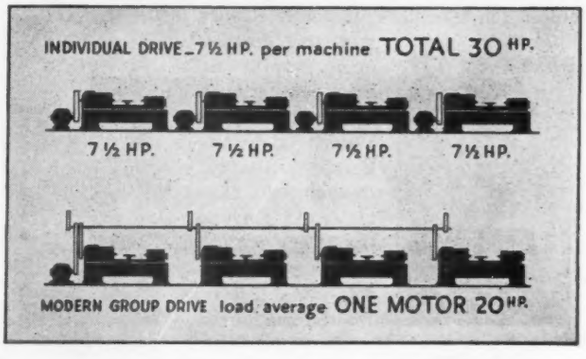
For example, consider the price of horsepower.



Then consider how the use of small motors affects your total horsepower investment.



Now see how much horsepower you actually need for a 20-horsepower job.



Case studies have been made in a number of plants showing detailed costs of group drives, or combinations of group and unit drives, compared with the cost of a unit drive on each machine. These case studies, available on request, report the actual findings of power transmission engineers working with the manufacturers' own plant officials, engineers and accountants.

A POWER DOLLAR SAVED IS A PROFIT DOLLAR EARNED

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Pacific Absorbs Sale of M. C. D. Borden Textiles

Announcement was made on October 31 that on and after Nov. 1, all merchandise of M. C. D. Borden & Sons, Inc., will be sold and charged from the offices of the Pacific Mills, 214 Church St., New York City. This change removes one of the two largest cotton textile goods printers of the country from the market, and is one of the most important developments in cotton goods merchandising in years. E. S. Cruttenden, sales manager of M. C. D. Borden & Sons, Inc., since 1912, has joined the Pacific Mills as head of a new division known as the American Print Department. The stock and the goods in process at the American Printing Company are being sold; the good-will and trademarks have been transferred to the Pacific Mills. Decision as to the disposition of the plant will be made later.

* * *

Parks-Cramer Acquires Firth-Smith Bunchless Automatic Cleaner

R. S. Parks, chairman of the board, Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C., has announced an arrangement whereby his firm has acquired the bunchless automatic cleaner and the dustless card stripping and cleaning business, heretofore carried on in the United States, Canada and Continental Europe by Firth-Smith Company of Boston. W. J. Smith, for the past seven years president, and W. B. Walker, southern representative, of Firth-Smith Company, have become associated with Parks-Cramer Co., Mr. Smith as vice-president, and Mr. Walker as sales manager, cleaner department. The long experience of these men in specialized lines of the textile accessory business, Mr. Parks pointed out, insures that the Parks-Cramer Company will be able to render the same attention to detail and service in the automatic cleaning and card stripping field which Firth-Smith Company developed and has maintained for many years.

R. S. Parks

It will be the policy of Parks-Cramer Company to continue the manufacture and sale of the cleaning apparatus and devices which it has successfully developed and sold together with those formerly developed and sold by Firth-Smith Company. "The textile industry, however, may expect that where features of one device will improve or simplify those of the other, changes in each or both will be made with the interests of the textile trade in mind," said Mr. Parks.

* * *

Bailey-Burruss Plant Is Acquired by Link-Belt Company

Announcement is made by Link-Belt Company, of Chicago, of the purchase of the physical assets of the Bailey-Burruss Manufacturing Company, 1116 Murphy Avenue, Atlanta, Ga. All divisions of Link-Belt's Atlanta sales office, heretofore located in the Haas-Howell Building, are being moved to the Bailey-Burruss plant, which will henceforth be known as the Atlanta Plant of Link-Belt Company.

I. H. Barbee

The new combined operations will be headed by I. H. Barbee, a Link-Belt engineer of long experience, who is being transferred from the Philadelphia Plant of the company. Mr. Barbee was formerly the manager of Link-Belt Company's office in Atlanta. R. L. Lowder and J. R. Martin of the Link-Belt Atlanta office will continue as a part of the new Atlanta organization, as will J. O. Bailey of the Bailey-Burruss Manufacturing Company.

Mr. Barbee says that with this personnel, the acquisition of all Bailey-Burruss machinery equipment, and the added stocks of Link-Belt Conveying and Power Transmitting Machinery which will be carried on hand, the reorganized Atlanta organization should be in position to serve the trade to much better advantage than heretofore.

The Atlanta Plant of Link-Belt Company

* * *

New Process for Treating Mercerized Yarn for Dye Control

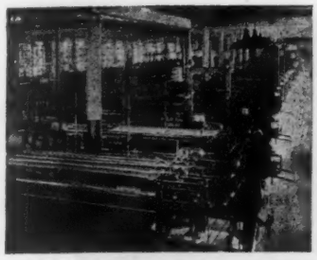
A new process for treating mercerized yarns to control dye affinity is announced by The Ewing-Thomas Corporation, Chester, Pennsylvania. The process, described as mechanochemical, controls the basic structure of the yarn, and for the first time makes available to the knitting trades mercerized yarns with heightened or retarded affinity for dye.

The new yarn, for which patent has been applied, is known as "Metro-Shade", which means "combining of shades", and is regarded of major importance to manufacturers using Bemberg and other synthetic fibres in combination with mercerized yarns particularly in the hosiery field.

The process is the result of experiment and research to perfect a union dye between Bemberg, which has a high affinity for dye, and mercerized yarns, and is an outgrowth of the extensive and increasing use of Bemberg in seamless and full fashioned stockings.

Because of their varying degrees of affinity for dyes, the use of synthetic fibers in combination with cotton fibers from the beginning presented a problem which involved both appearance and cost of the finished product. The advent of dull luster synthetic yarns further increased the difficulties of perfect union dyeing. While dye manufacturers have worked closely with synthetic yarn producers to perfect dyes by which satisfactory union shades could be achieved, and have succeeded to some extent in overcoming the difficulties, they were definitely limited by conditions which neither yarn producer nor dye manufacturer could over-

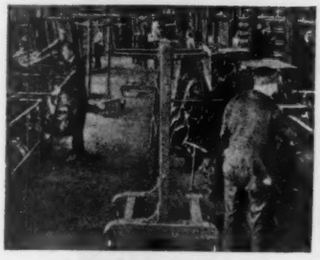
Are We too Extravagant in Making Chafeless Cord?



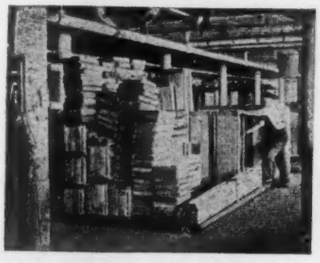
Batteries of high speed knitting machines —to expedite delivery.

Here are some of the things we do. Would you have us cut them out?

We have always spent money freely to improve our cotton harness, and in making Chafeless Cord we add many little details which we consider important. Some say we are extravagant—that these little details which add to the cost could be eliminated.
Tell us frankly, would you have any of them reduced?
Despite three extra qualities and the painstaking detail, Chafeless Cord costs no more than ordinary cotton harness. That is due, in part, to the fact that Chafeless Cord is the fastest selling cotton harness made. These costs are divided over such a large quantity that the actual added cost per set is infinitesimal. The result is that you get more for your money when you get Chafeless Cord. Read about these extras.



Varnish machines which supply five coats uniformly, thoroughly



Seasoned harness shafts of all dimensions —kept to fill rush orders

UNIQUE PROCESS

We use only select, *long staple* twine in Chafeless Cord—and treat it with a special preparation that lays the tiny lint fibres evenly, flat and parallel. Thus the unvarnished twine is given a peculiar sheen, almost silk-smooth—a sheen that takes the varnish in glass-smooth, evenly distributed coats.
Next a precision machine applies 5 coats of varnish absolutely uniform in thickness. There can be no unevenness, no varnish lumps, no roughness to chafe the warp ends. Old hand methods could never approach the accuracy and precision of this machine. It gives smoothness impossible by less modern methods—a smoothness that lets the ends pass through soft and full to build up vastly improved cover in your goods.

NEW FLEXIBILITY AND MULTIPLIED LIFE

In addition, this process adds flexibility. We have developed a special varnish for Chafeless Cord. It is "cut" or mixed with *pure* turpentine. That prevents the harness cracking and breaking. Yet it makes for remarkable flexibility in the loom.
Here is a possibility to save, by using inferior substitutes. But we know that *pure* turpentine adds the flexibility that you need—eliminates the cracks, whose sharp edges catch small slugs and knots that break the end and stop the loom. You would not have us economize here.

HUMIDITY PROOF

With these improvements we add remarkable life to harness. After the five coats of varnish are applied each coat is Slow Baked in closed dryers at 175 degrees. Each set is thus baked a total of 2 days and 2 nights—which adds durability. The finish resists wearing at the eyes almost indefinitely, and in a way that no other harness can.
Then to the finished harness we add an overdressing that is humidity proof; a dressing that is impervious to the moisture of the weave room. This process alone has added much to the life of cotton harness.

All of these little extras—*selected* twine; special preparation for laying fibres flat; five (5) coats of good varnish and pure turpentine; careful and Slow Baking that adds durability; humidity-proof overdressing that adds longer life—all of these cost money. But remember they are divided by thousands of beers per year. They make the cost per harness trifling.

SPEEDIER DELIVERY

You will notice along the side some pictures of Emmons High Speed Equipment —the most extensive and advanced equipment in the industry. This enables us to reduce ordinary production time as much as 45%, if you require it.

No hand methods can compete either in accuracy and quality or in speed of delivery with this Emmons equipment.

THE UTMOST IN VALUE

Our object has been to give you the utmost in harness value; to give you exactly *what* you want, *when* you need it. You will find this true if you make comparisons. In many ways you will discover that Chafeless Cord excels ordinary cotton harness.

That is the reason Chafeless Cord is the fastest selling cotton harness today. And we have provided the facilities to meet the demand.

We spend money freely—for materials, for craftsmanship, for inspection, for high speed precision machinery. But in our quantity production we still bring costs down to bottom.

That is the reason we believe that Chafeless Cord represents the best value in cotton harness today. Let Performance prove its value to you. Decide now that your next order for cotton harness will be Chafeless Cord.

Chafeless Cord

gives these

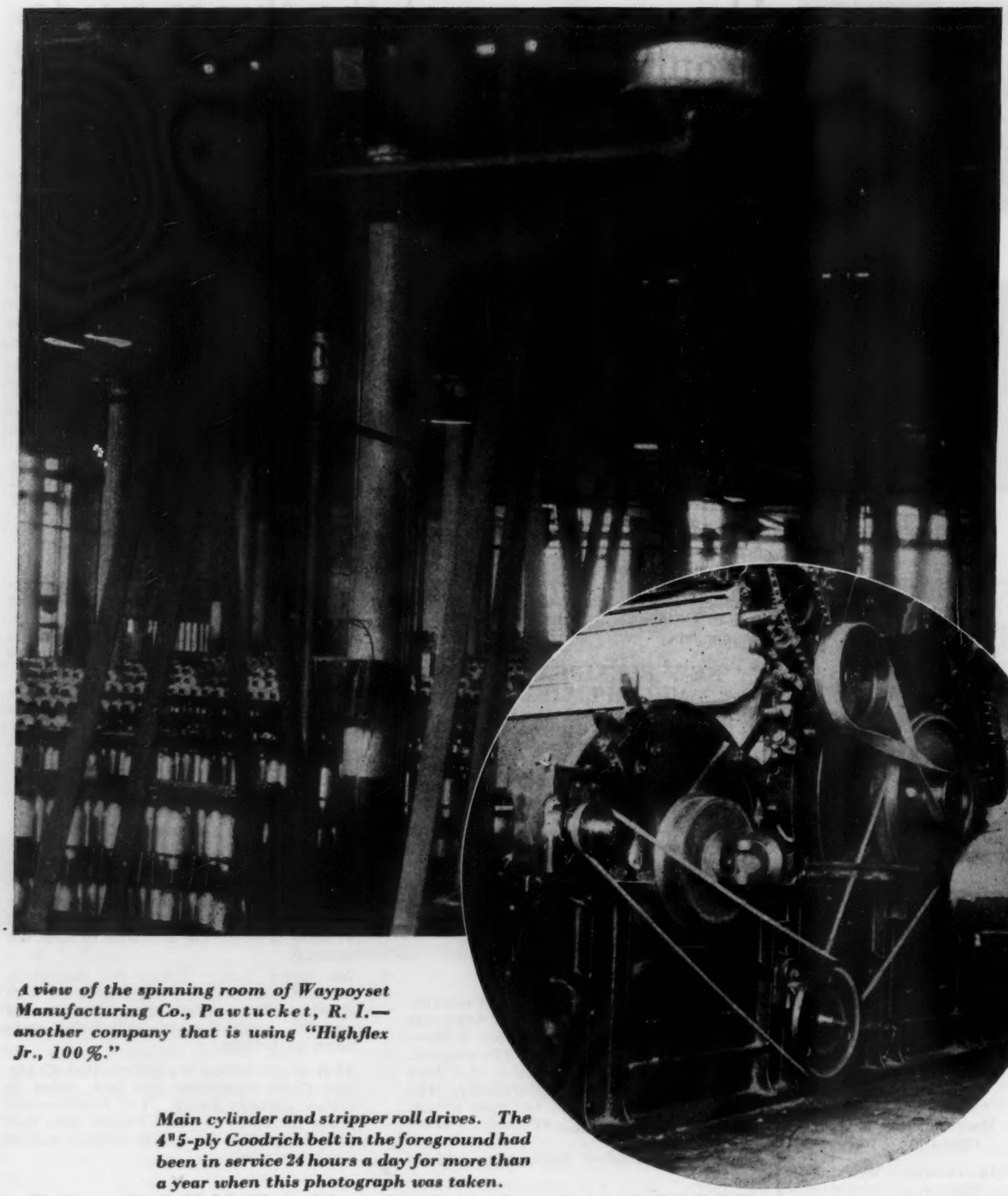
PERFORMANCE ADVANTAGES

1. Maintained Quality Production
2. More Continuous Loom Operation
3. Increased Weaving Efficiency
4. Lower Repair and Renewal Costs

EMMONS LOOM HARNESS CO.

LAWRENCE, MASS.

THIS BELT CAN TAKE



A view of the spinning room of Waypoyset Manufacturing Co., Pawtucket, R. I.— another company that is using "Highflex Jr., 100%."

Main cylinder and stripper roll drives. The 4"5-ply Goodrich belt in the foreground had been in service 24 hours a day for more than a year when this photograph was taken.

Goodrich

A DRINK OF WATER

. . without getting cramps

Highflex Jr. is its name, this special belt for cotton mill service. It beats an old belting problem — humidity in the spinning room. It can take a drink *"without getting cramps!"*

Look back on your own experience with rubber and fabric belting. You spent good money for those belts — and what happened? The cotton fabric absorbed moisture, shrank, built up destructive tensions. Fasteners were pulled out, edges were frayed. You became disgusted with the product of your own industry as a belting material. You turned to leather despite the fact that leather costs more and also relaxes under tension. You thought leather would last longer. You were right — *at that time.*

But today the picture has changed. Highflex Jr. does away with every kind of belting headache. It does not relax under tension nor does it build up excessive tension through moisture absorption. Goodrich engineers have discovered what keeps rubber and fabric belts from shrinking on the job. They know how to apply them in any mill. Let them show you why Highflex Jr. belting will run month after month in *your* mill without causing any of those troubles you may have had with the early crude attempts to use rubber and fabric belts.

•

GOODRICH MECHANICAL RUBBER GOODS FOR THE TEXTILE INDUSTRY INCLUDE:

- *Transmission Belting*
- *Multiple-V Belts*
- *Conveyor Belting*
- *Air, Water, Suction, Steam and Fire Hose*
- *Roll Coverings*
- *Packing . . . . and*
- *A Complete Line of Miscellaneous Rubber Items*

ALL *products problems* **IN RUBBER**

Goodrich Highflex Jr. is establishing its superiority every day because:

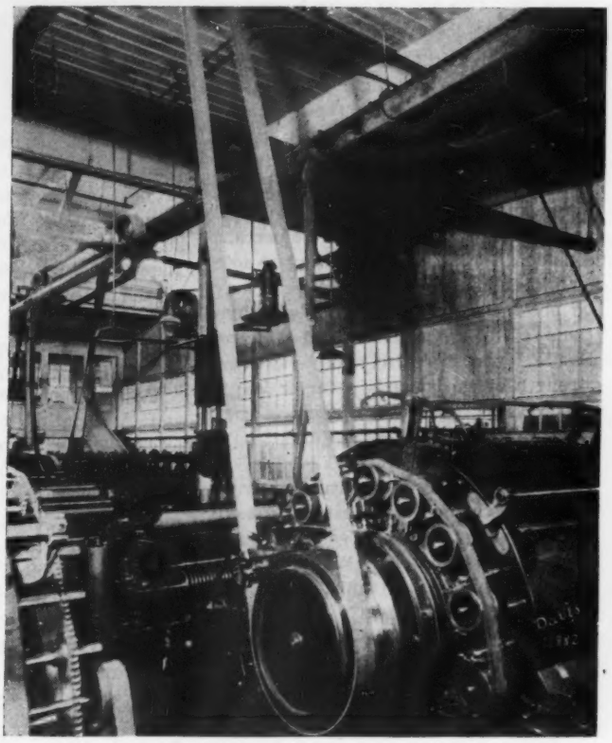
1—Highflex Jr. maintains higher, more uniform speeds.

2—Highflex Jr. requires less attention, little or no taking-up.

3—Highflex Jr. operates more smoothly, with less vibration.

4—Highflex Jr. costs less — ⅓ to ½ the price of leather belting. And it saves even more, by increasing production.

Call in the Goodrich distributor or write direct for further information. The B. F. Goodrich Company, Mechanical Rubber Goods Division, Akron, Ohio.



All users of Highflex Jr. know that the Goodrich belting line is unequalled in versatility. Equipment will vary, new problems will arise — but there is always a Goodrich belt to do the job, and do it better.

Highflex Jr. Belting

come, it is pointed out by Henry A. Stafford, technician and superintendent of the Ewing-Thomas Corporation. Solution of the problem was therefore sought, he states, through control of the inherent structure of mercerized yarns, as this structure relates to depth of shade in dyeing.

The effect of the new process tends to increase the strength of the yarn, according to Mr. Stafford, the uniform knitting and dyeing qualities of "Metro-Shade" yarns being identical with their regular "New Finish" mercerized yarns. "Metro-Shade" Number I dark is processed for greater affinity to dye than their standard "New Finish" yarns and is particularly suitable where mercerized yarn is combined with Bemberg. "Metro-Shade" Number II light is designed to meet the need for a yarn with retarded dye affinity, often required to effect a better union with viscose fibres when used in combination with mercerized yarn. The "Metro-Shade" process tints NUMBER I DARK a fugitive pink and NUMBER II LIGHT, a fugitive blue to distinguish the two processes and prevent confusion in their use.

It is believed that the new yarns will find application not only in women's stockings and in certain types of children's hosiery and men's half hose, but will also prove of great value in all fabric fields wherever combination of fibres with mercerized cotton is used and proper union dye an important consideration. It is interesting to note also that multiple shade effects may be obtained through various combinations of "New Finish" and "Metro-Shade" yarns. Also, the increased strength of the yarn is a factor in extra wearing quality. Extensive tests in connection with "Metro-Shade" have been made by The Ewing-Thomas Corporation, and the new yarns are available through them at Chester, Pennsylvania, and through their selling agents, Cannon Mills, Inc., 1616 Walnut Street, Philadelphia, Pennsylvania.

* * *

Course in Textile Fibers at Univ. of Chattanooga

The University of Chattanooga, Chattanooga, Tenn., is operating a course in textile fibers as a part of the university's program of adult education. The course opened on October 20, to continue with two-hour sessions each Saturday morning for 15 weeks. It differs from regular adult classes by not giving college credit and not having scholastic requirements for admission. The first series of lectures is being given by Sidney M. Edelstein, who is engaged in textile fiber research at the Dixie Mercerizing Co. He is a graduate in chemical engineering from Massachusetts Institute of Technology, and specialized in textile fibers under Edward R. Schwarz of that institution. The course covers the physical nature of cotton, wool, silk and rayon; the chemical construction of the various fibers, and the effect on these of the various treatments in textile manufacturing.

* * *

Cotton, Rubber Lined Fire Hose Sees 31 Years Service

An unusual record of durability has been given by a fire hose at the United States Lace Curtain Mills, Kingston, N. Y., who reported to the hose manufacturers that 600 feet of 2½-inch Manhattan fire hose, purchased in 1903 has been in use as required up until

31-year-old hose

June 18, 1934, when it was recommended that 100 feet be replaced, this portion having been used to put out fires in coal storage and the gases from burning coal. The other 500 feet is still in good condition. The photograph shows a 50-foot length sent by the user to the manufacturer.

* * *

Southern Meetings of Textile Chemists and Colorists

Two southern sections of the American Association of Textile Chemists and Colorists were held on Saturday, November 10. The Piedmont section, meeting in Charlotte, N. C., for its annual meeting, elected Paul F. Haddock, southern manager of American Cyanimid and Chemical Corp., as chairman, succeeding George P. Feindel, of Union Bleachery, Greenville, S. C., who presided at the meeting. Chester L. Eddy, of Brandon Corp., Travelers Rest, S. C., was made vice chairman; T. R. Smith, of Belmont, secretary; and Hobart Southern, of Greensboro, N. C., treasurer. James G. Vail, of Philadelphia Quartz Company, presented a technical paper on the subject of silicates in the textile industry, and Dr. Graham Cook, of Albright College, also presented a technical discussion. David Clark, editor of the Textile Bulletin, spoke on current topics of a textile nature in the absence of Senator Robert R. Reynolds, who had been expected for the feature address.

On the same date, the fall meeting of the southeastern section was held in Atlanta, beginning with a dinner and entertainment in charge of Sam Clement, S. I. Parker and James White. An interesting moving picture, "Velvet, the King of Fabrics" was shown by B. A. Alexander of Collins and Aikman Corp.; and H. G. Harvey, manager of the engineering department, southeastern district, Westinghouse Electric & Mfg. Co., Atlanta, discussed, "The Photo-Electric Cell in Color Matching". Charles B. Ordway, of Auburn textile school, is chairman of this division, and C. A. Jones, director, A. French Textile School, Georgia Tech, Atlanta, is secretary.

* * *

Standard-Coosa-Thatcher Appoints Boston Agency

George H. Greene, head of the thread division of Standard-Coosa-Thatcher Company, Philadelphia and Chattanooga, recently announced the appointment of the Hub Thread Company, 124 Harrison Ave., Boston, Mass., as New England agents for the company. The new agency will carry a complete stock of threads for the convenience of the trade.

* * *

Passavant & Co. Business Joins William Iselin & Co., Inc.

Jarvis Cromwell, president of William Iselin & Co., Inc., has announced that the business of Passavant & Company is being transferred to William Iselin & Company, Inc., as of January 1, 1935. Mr. Cromwell said the various accounts of mills, mill agents and manufacturers heretofore factored by Passavant & Company will do business in the future through the Iselin organization.

According to Alfred H. Rust, sole surviving partner of Passavant & Company, the decision to liquidate the capital and transfer the accounts was reached in deference to estate interests. Mr. Rust will become a vice-president of William Iselin & Company, Inc., and will have personal charge of relations with the former Passavant accounts.

Passavant & Company is one of the oldest textile factors. It was established in 1853 and has been one of the outstanding names in this field of activity. Because of a certain similarity, in background, between the Passavant and Iselin firms, the union is regarded as a logical one.

William Iselin & Company, Inc., a subsidiary of the Commercial Investment Trust Corporation, was formed a few years ago upon the acquisition of the factoring business of the partnership of William Iselin & Company, which for over a century has occupied a leading position in financing textile industries. The executive officers of the Iselin corporation are former part-

ners and employees of the Iselin partnership, with Lincoln Cromwell, chairman of the board of directors, Arthur Iselin, chairman of the finance committee, Jarvis Cromwell, president, Kenneth P. Budd, executive vice-president, George A. Vondermuhll, vice-president, secretary and treasurer, and Oliver Iselin and John W. Fitzgerald, vice-presidents.

* * *

Additional Personals

G. R. EASLEY has been appointed sales representative for the Acme Steel Company in South Carolina, with headquarters at 107 Manly St., Greenville, S. C., where a complete stock of Acme products is carried. Mr. Easley was for several years connected with HEXT M. PERRY, textile mill purchasing agent.

A. G. HEINSOHN has been made general manager of the Cherokee Spinning Company, Knoxville, Tenn. He has been associated with the selling agents, McCampbell & Company, and will now divide his time between Knoxville and New York City.

FREDERICK JACKSON, of Charlotte, N. C., recently retired from active service with the Universal Winding Company after an association of nearly 30 years with the company. Mr. Jackson is one of the best known and most popular men among the textile traveling fraternity. He came South 27 years ago as southern representative for the Universal organization.

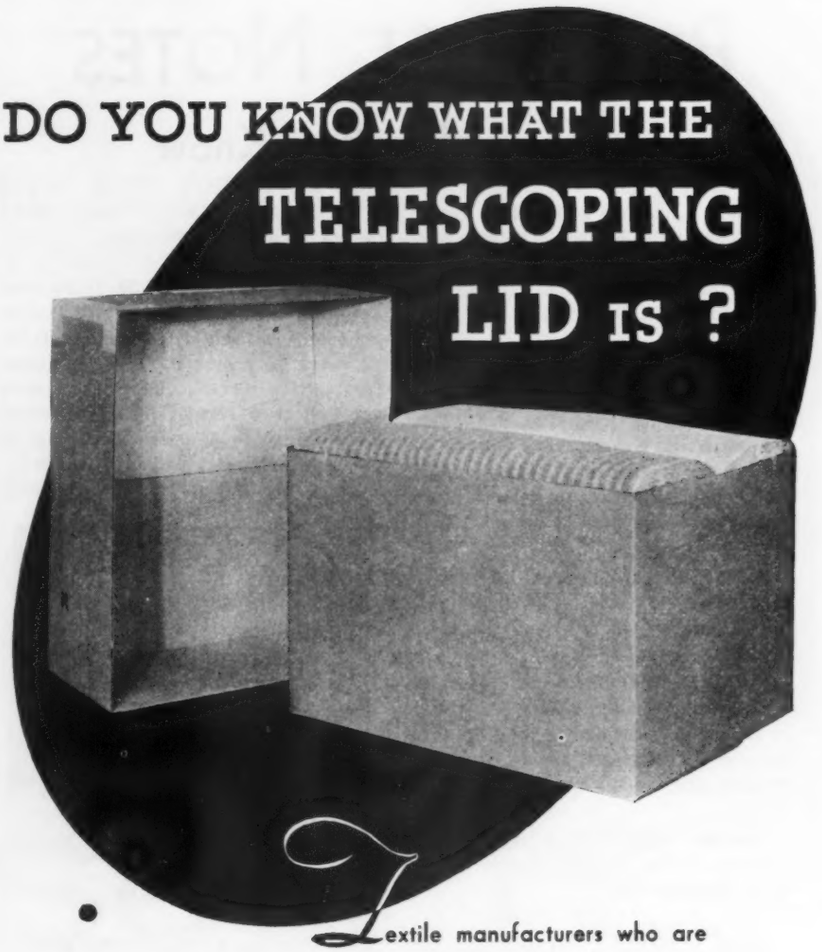
* * *

Obituary

KENNETH MOLLER, president and manager of the Textile Patent and Process Co., Boston, Mass., passed away at Milton, Mass., on November 10. He was 51 years of age. Mr. Moller was well known in the textile industry. He was in 1910 general superintendent of Jenckes Spinning Co., Pawtucket, R. I., later was with William Whitman Co., and, after the war, was associated with Lockwood, Greene & Co. In 1925, he was vice-president of Hunter Manufacturing & Commission Co., and later was with Joseph Bancroft & Sons Co. He formed the Textile Patent and Process Company in 1929.

* * *

J. FRANK CRAWFORD, of Atlanta, Ga., for a number of years sales representative of Stein, Hall & Co., passed away on Tuesday night, November 27, following an illness of five days resulting from pneumonia. Mr. Crawford, who was 42 years of age, was one of the best known sales representatives in the textile South. He was a brother-in-law of ARTHUR W. HARRIS of Harris Mfg. Co. Funeral services for Mr. Crawford were held in Atlanta on Wednesday, November 28, with interment at the family home, Jonesville, S. C.



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PERSONAL NOTES
about Men You Know

J. W. HAMES has resigned as superintendent of the Scottdale Mills, Scottdale, Ga., to become superintendent of the Tifton Cotton Mills, Tifton, Ga., succeeding J. L. BARNWELL.

JOHN KILLARS, JR., general manager, has been elected treasurer and director of Judson Mills, Greenville, S. C., succeeding W. E. WINCHESTER, who is also a partner in Deering, Milliken Company, selling agents, and who will devote most of his time to New York.

R. A. ODOM has accepted the position of overseer of weaving at the Selma Mfg. Company, Birmingham, Ala.

HENRY F. HORN has become overseer of weaving, slashing, drawing-in, tying-in and cloth room at the New Bedford division of Kendall Mills (formerly Holmes Mfg. Co.), New Bedford, Mass.

HOWARD WEST is now overseer of carding at the Rodman Heath Cotton Mills, Waxhaw, N. C.

ELLIS J. BOSWELL, overseer of carding at the Panola Mill, Greenwood, S. C., has been given charge of the spinning, spooling and warping departments also. H. F. RUSH, formerly superintendent and spinner, has resigned to enter private business in Greenwood.

W. S. WARREN, who has been representing the Universal Winding Company of Boston in the Western New England territory since 1922, has recently been given charge of the Northeastern New England territory, formerly under the direction of HAROLD ARMITAGE. After serving as an officer during the World War, Mr. Warren became associated with the Universal organization, and after a year at the Providence factory was sent to the Charlotte office, where he remained for some months. From there he went to the Utica branch, and then to Atlanta to open the office there; after two years in Atlanta he was assigned to the Western New England territory, where he has been in charge since.

W. S. Warren

WILLIAM SMITH, for 30 years connected with the New Bedford Textile School, New Bedford, Mass., and for 12 years its principal, recently retired from active service, due to the state's age limitation regulations. His retirement brings to a close more than 50 years of active service in the textile industry, starting in Lancashire, England, when, as a boy, he took his first job in a mill. His interest in the mechanical problems and personnel of the industry intensified rather than dimmed by his long service, however, Mr. Smith will continue in a personal way, at his home at 100 Chestnut Street, New Bedford, the research and investigation work which in recent years claimed much of his attention.

William Smith

Mr. Smith came to the United States when he was 18 years of age, and worked with the Clark Thread Company for 14 years, later traveling throughout the country as machinery erector, and serving other plants in a supervisory and managerial capacity. He went to New Bedford then as overseer of carding at the Whitman Mill No. 2, when that plant was started, and remained there until joining the faculty of the then small New Bedford Textile School. Christopher P. Brooks, pioneer textile educator, interested Mr. Smith in connection with textile correspondence courses, and later persuaded him to join the textile school, with which he remained, first as instructor, then in charge of carding and spinning, and later as director, until his recent retirement.

During his experience, in addition to his service in training men for the industry, Mr. Smith has developed and perfected a number of important mechanical improvements in connection with cotton mill equipment and processing. Hundreds of men in the various branches of the industry today, who received their technical education under Mr. Smith's kindly and constructive direction, and his many other associates and friends in the industry, join in a hearty Hail to him with a wish and prayer that he may enjoy many more years of comfort, happiness and health!

E. W. MARTIN, formerly sales manager of Tubize Chatillon Corp., has joined the American Enka Corp., in charge of yarn sales to the knitting trade. Mr. Martin has been in the yarn business for 14 years, starting with the Booth Mill, New Bedford, and later representing Harding, Tilton Co., in New York and Philadelphia. He entered the rayon field in 1930 when he joined Tubize-Chatillon. Mr. Martin, and HOWARD N. CAPPEL, vice-president of Tubize-Chatillon, recently resigned their positions with that organization.

CHARLES E. BUTTERFIELD, formerly assistant superintendent of the American Woolen Co., Plymouth, Mass., has been made general manager of the Broad Brook Woolen Mills, Broad Brook, Conn., succeeding HARRY BROOK.

ALBERT L. SCOTT recently resigned as president of the National Association of Finishers of Textile Fabrics.

J. W. SKIPPER, JR., has been made assistant superintendent of the Aponaug Mfg. Co., Kosciusko, Miss.

GEORGE D. SIMPKINS, SR., has been promoted to assistant superintendent of the Collins Mfg. Company, Inc., Asheville, N. C., and is succeeded as overseer of carding and spinning by L. W. GREEN.

J. C. STROWD has become overseer of carding at the Edna Mills, Reidsville, N. C.

J. W. TRIGG has become assistant superintendent at the Meritas Mills, Columbus, Ga. He has recently been overseer of weaving at the Manville-Jenckes Corp., Loray plant, Gastonia, N. C.

T. C. COXE has resigned as president of the Wade Mfg. Company, Wadesboro, N. C., and has been succeeded by L. D. RIVERS, who is also president of the West Knitting Company of Wadesboro.

(Additional Personals and Obituaries on page 79.)

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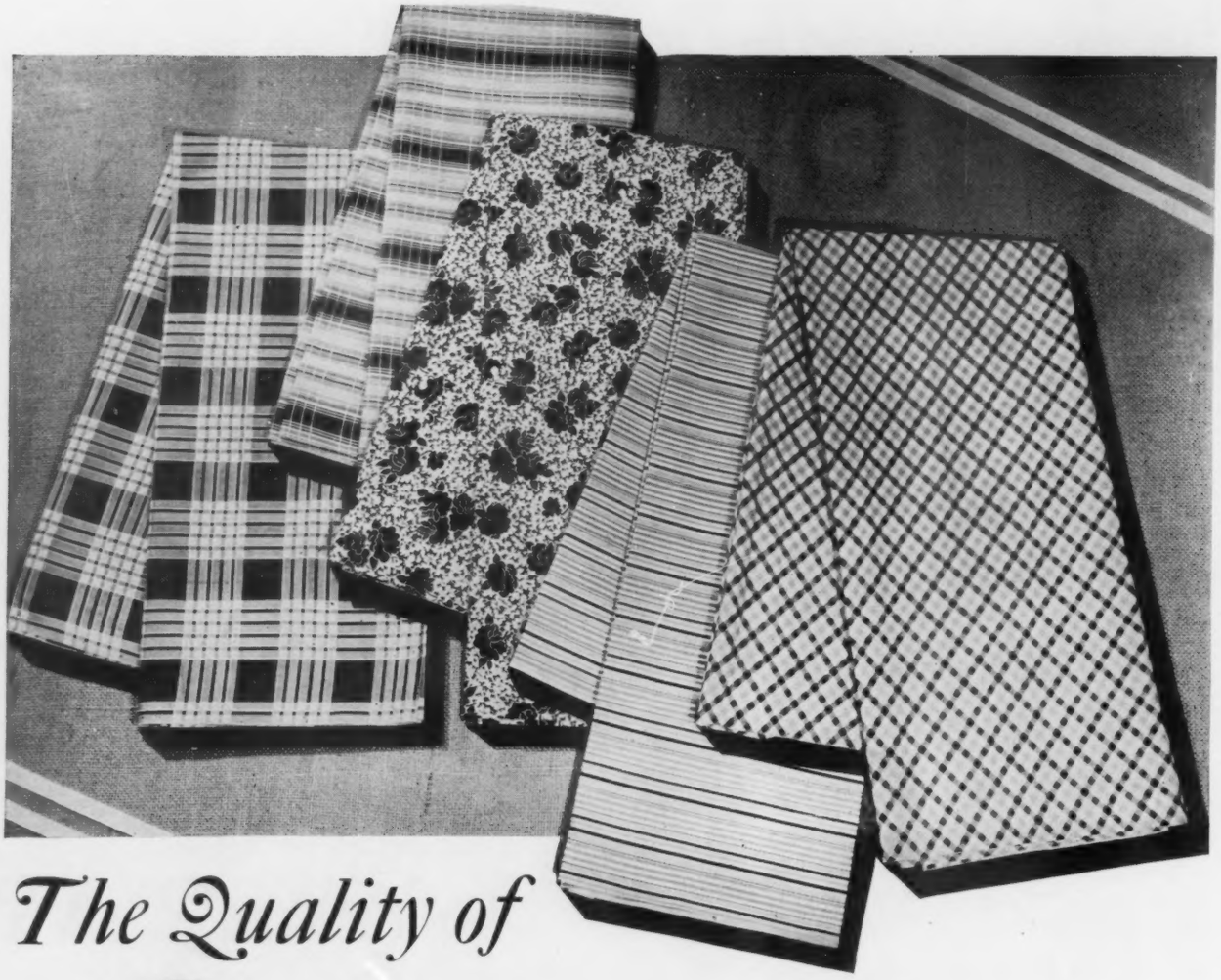

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AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

Some Random Thoughts

EVER see a flock of white sheep with only one black sheep among them—goodness, how that black sheep does stand out! This same reasoning explains why the really successful overseer or superintendent stands out so prominently. It is because he is surrounded by so many other overseers and superintendents who are just "medium".

There is really not much competition when you stop to think it over. Most any fairly intelligent overseer or superintendent can rise above the others if he has the back-bone to study and improve his knowledge, not only of textiles, machinery, etc., but his *general* knowledge which may be acquired by constructive reading.

Another very good reason why some few overseers and superintendents are more successful than the others is, that the vast majority are just too darn lazy to make the effort.

Now that word "lazy" is an ugly word, and I certainly do not want you to misunderstand—to think that I am using it in its commonly accepted meaning, that the majority of overseers and superintendents are lazy physically. No, I certainly do not mean that, because, on the other hand, I do know that the majority of the overseers and superintendents of mills have more vim, more zeal, and more enthusiasm than the foremen of almost any other industry.

The thought that I am trying to convey is that they do not take advantage of their opportunities as they should; they do not go to school to themselves, so to speak, as they should, and with all of the textile magazines so full of valuable information, many who read these articles do not go back in the mill and try to put into practice what they have read.

With the almost unlimited number of books on the market, covering every phase of textiles, and which may be had for a trifle—well, now you see what I mean by the word Lazy. Does it really apply to *you*, or does it not?

Most of us are just running our jobs and waiting for something to happen, while the fellow who MAKES THINGS HAPPEN is drawing the big salary.

"Smartness enables a man to catch on, but wisdom tells him when to let go."

During this business depression I have seen some of my friends lose all they had by not having wisdom enough to let go soon enough to save a part of what they had. So it is, often, when an overseer or superintendent starts to put into practice what he honestly believes is a good, practical idea. When he gets into it he finds that it is not as good as he thought, but, too often, his hard-headedness will prevent his letting go until he has either hurt himself in the estimation of his boss or has cost his company money.

* * *

Recently I saw some instructions that a certain chain of hotels gives to its employees as follows:

A hotel has just one thing to sell.
That one thing is service.
A hotel that sells poor service is a poor hotel.
A hotel that sells good service is a good hotel.
It is the object of this hotel to sell its guests the *very* best service in the world.

And here is what went through my mind as I read it:

An overseer or superintendent has just one thing to sell.

That one thing is Service.

An overseer or superintendent who sells poor service to his employer is a poor overseer or superintendent.

An overseer or superintendent who sells good service to his employer is a good overseer or superintendent.

The highest goal any overseer or superintendent can achieve is to sell his employer better service than he can get from any other overseer or superintendent.

* * *

Yes and No are two of the simplest words we have in our vocabulary, but it takes years and years of experience to learn to use "No" when you want to say "Yes," and vice versa.

* * *

A Personal Word: I wish every one of my readers a very joyous Christmas and a New Year filled with happiness, health and achievement! OLD-TIMER.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Regarding the Help

EDITOR COTTON:

I oftentimes wonder just what my help would be if I could understand their every whim, if I could know just how they feel toward me. It is true that we should have help that understand the different operations and that will take an interest in their work, but I don't believe there is an overseer yet born who has the instinct to read the future character of his employees, and if the old adage is true—"A precedent embalms a principle"—then we as overseers should set that precedent, show that we are interested in order that we may attain the power to procure favorable results; and of course we should show that we have confidence in our employees—but there is one thing that we should avoid above all, and that is over confidence.

When I was a young boy I worked in a few of the larger mills of the South, and of course it didn't mean anything to me then, but it is beyond me now how any overseer can be a success by sitting reared back in his office just taking things for granted. A good overseer is one who can map out the operatives' line of duty, get them started in the right direction and continually train them until they have reached a standard, but never neglect them long at a time lest they get careless.

Try this on an oiler some time: just before he starts his regular oiling duties, pass by some machine and drop a dirty piece of cotton waste over some oil hole that is likely to be neglected. Then when the oiler has completed his rounds, happen by again that way and see if the piece of cotton waste was removed. If not, then there is where a good overseer would come in handy.

In the beginning I said, "If I could only understand my operatives—", well, this applies to me also in connection with my help; if they could only understand my every need, every why and cause of all the worries, I am sure that I could get better results. I have always believed it a good policy to make very plain to my help just why it is necessary to take certain steps. I would never assign an extra duty to an operative without explaining to him just why it was necessary to do so and the benefits to be derived from making such a change.

Try this on a lapper tender: After you have checked up on the finished lap weights as usual, leave the room nonchalantly and return in 15 minutes or just in time to check the second doff, and make another check. This is a good way to determine whether the lap weights are running uniformly.

T. R. (N. C.)

The Pressure of the Presser

By Fay H. Martin

THIS article by Mr. Martin follows the discussion by him, "Bobbin of Roving Analyzed," page 77, November issue, and will be followed by another article by Mr. Martin on "The Hyperbola Curve", in an early issue . . . . . .

Centrifugal Force may be defined as follows: When a body revolves in a circular path, it exerts a force called *centrifugal force* upon the arm or cord which restrains it from moving in a straight (tangential) line.

If a weight is attached to a cord and swung in a circle, at any angle, the cord will always be taut and in a straight line to the weight attached thereto; this is a simple example of the power of centrifugal force.

The word "centrifugal" means "tending or causing to fly off from the center; radiating from a central focus". In any mechanical engineering handbook, formulae are given for calculating centrifugal force but they use fly wheels and pulleys for examples and the factors involved are weight of revolving body in pounds; velocity of revolving body in feet per second; radius of the circle in which the body revolves in feet; number of revolutions per minute, and acceleration due to gravity which equals 32.16.

With these factors given, the ordinary formula for centrifugal force would read:

$$\text{Force} = 0.000341 \times W \times R \times N^2$$ in which

W = Weight in pounds
R = Radius in feet
N = Revolutions per minute
2 Means revolutions squared, that is multiplied by itself.

Other factors are constant and are contained in the constant number. Thus you see that all factors are in the example of a weight attached to a cord in which W is the weight; the length of the cord is the radius R; and N is the revolutions or the speed at which you are swinging the weight.

Centrifugal force is a fundamental law of nature and mechanics and can be calculated and determined. But in this article we want to illustrate how this fundamental law is applied to the presser of a roving frame flyer.

As you well know, the presser is mounted upon and swings around the tube leg of the flyer and the presser pad or foot is confined and can only swing from an empty to a full bobbin. This pad is controlled by a counterbalance weight in the form of a rod, which we will call a balance rod, which ex-

JUST a Reminder

to send for the Red Book of Industrial Power Transmission as offered by the Power Transmission Council on pages 72 and 73 of this issue of Cotton. If you prefer, you can write *us* and *we* will send you a copy together with a Case Study of Power Transmission Costs for your type of plant. The latter will give you detailed costs of modernized group drives compared with the cost of a unit drive on each machine. Send for them *now* . . . . .

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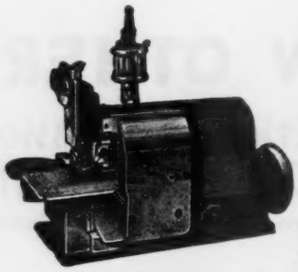

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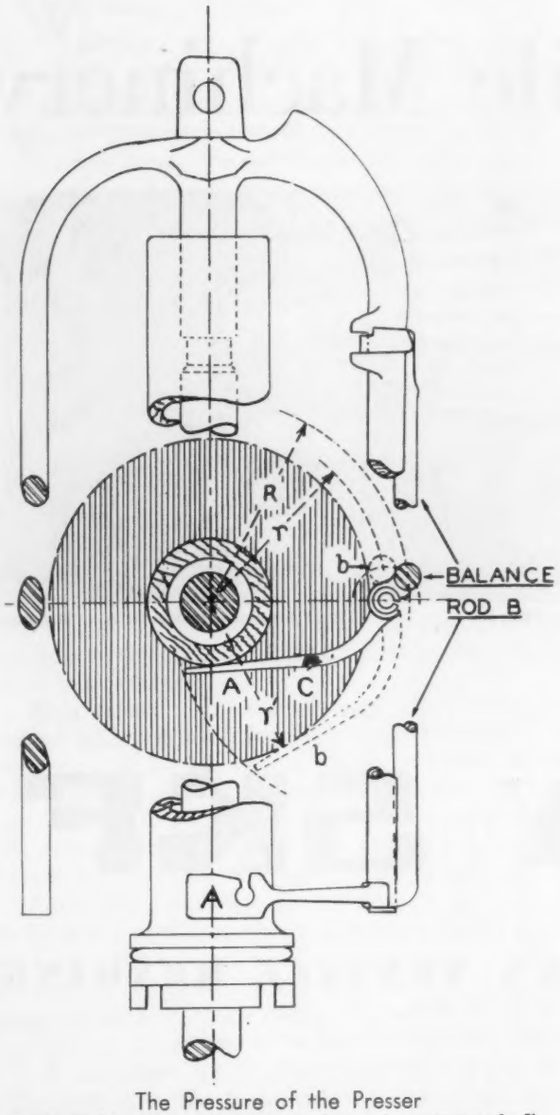


The Pressure of the Presser

7x3½ Bodden Flyer (drawing ½ size). A, presser pad; R, radius empty bobbin; r, radius full bobbin; b, presser at full bobbin; c, presser at empty bobbin . . . . .

tends along the outside of the tube leg of the flyer and the action of the whole presser is controlled by centrifugal force.

By looking at the accompanying illustration, it will be seen that when the presser pad A is on the empty bobbin, the balance rod B is farthest away from the center of the spindle. In this position the centrifugal force is at its greatest on the balance rod; this force is transmitted through to the presser pad and therefore the pad is receiving and giving its greatest pressure against the bobbin.

As the bobbin begins to fill, the pad moves outward from the center and the balance rod moves inward towards the center of the spindle. This outward and inward movement continues until the bobbin is fully wound, in which position the centrifugal force is at its least on the balance rod, and on being transmitted, is at its least on the presser pad. Thus the pressure of the pad on the bobbin becomes less and less as the bobbin fills up.

But another factor enters in and that is, as the pressure pad moves outward, the centrifugal force becomes greater on the pad itself; thus reducing the pressure of the presser upon the roving.

Hence it is that with the centrifugal force growing less on the balance rod and growing more on the presser pad, we get a gradual decrease in the pressure of the pad upon the roving as the bobbin is being wound.

In the making of the presser, the balance rod is of sufficient weight to overcome the centrifugal force that occurs on the presser pad when the bobbin is full, but if the bobbin could be wound ⅜ inch or ½ inch larger in diameter, the presser pad would fly off thus overcoming the force that is applied to the balance rod. But this is all arranged for in the design of the presser, with its limiting stops.

Therefore, the centrifugal force decreases as the diameter of the bobbin increases and this fact is really noticeable on the roving since the inner layers of a bobbin are pressed flatter than the outer ones.

Another influence bearing upon this fact is that the roving at the beginning of a new doff is wound on the hard bobbin and thus helps to flatten the roving, whereas later on the softness of layers form a cushion for the presser pad.

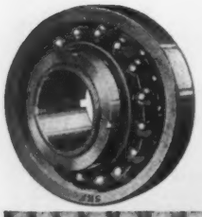
Speed plays an important part in centrifugal force, as the force increases as per the square of the revolutions per minute. Thus if a roving frame was running at a speed of 1,200 on the spindles, the square would be 1,440,000 while if the frame was speeded up to 1,500, the square would be 2,250,000 or 56 per cent more with other factors remaining the same. Hence the higher the speed the greater the force.

Therefore, roving frames should only be run at about the speed that they are designed for to obtain the best results.

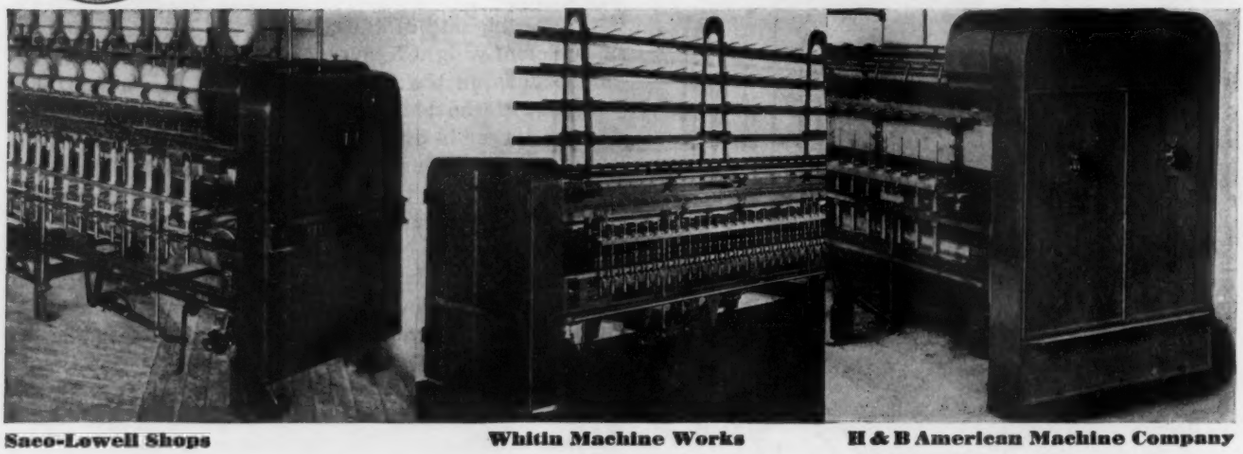
The pressure of the presser pad upon an empty bobbin, with a 7 x 3½ flyer and a speed of 1,200 on the spindles has been figured out to be approximately 12½ per cent greater than on the surface of a full bobbin where it is almost nothing.

The most difficult factor to obtain in calculating the force on a presser is the weight of the revolving body, which is the presser, for the presser has to be cut into pieces and each piece weighted separately. The mean weight of the presser is obtained by subtracting the weight of the pad, etc. from the weight of the balance rod. This varying pressure of the presser, while it is winding a bobbin, has a very decided influence upon the contour of the cones.

Since it cannot be seen just how to overcome this varying pressure on the presser. in a simple and practical way, on the flyer or presser itself, owing to the fundamental law of centrifugal force, a new bottom cone for a roving frame has been developed to compensate for these variations, with an entirely different outline of the cone, inside a mathematical hyperbola curve. The cone is not a continuous curve any more but consists of a series of conic frusta of different slopes and lengths presenting a profile made up of segments of straight lines of substantial length all plotted into a general outline to compensate for the *pressure of the presser* at the variable positions of the cone belt on the cone.



For Textile Machinery



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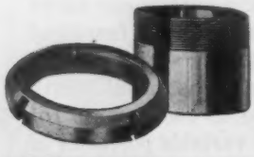

•The SKF adapter bearing is provided with a tapered split adapter sleeve, lock nut and lock washer. This insures a CLOSE FIT *... a grip that results in no creeping ... no peening of the shaft—a fastening sufficiently concentric to avoid vibrations.*

SKF
BALL BEARINGS

8265-a

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

"Wash" Submits Some Weaving Questions

Tells of having a son in textile school and clarifies his position on the matter of textile graduates

EDITOR COTTON:

I see on page 80 of the September issue that "CONTRIBUTOR NO. 6255" gives me a batting average of 500 per cent. For this compliment, please accept my sincere thanks. Evidently, however, the gentleman has misjudged "WASH", for I wish to state that I never ask a trick question.

With reference to what he says about running a slubber with two teeth less than standard twist, I am wondering if he knows the length of stock run by "CONTRIBUTOR NO. 4726", who was the man in question. If "CONTRIBUTOR NO. 6255" will explain how this can be done with 15/16-inch cotton, I will appreciate it for I want to keep up my batting average.

Again the gentleman misunderstands me when he states that I said I would not promote a textile school graduate. True, I have made that statement with a tail to it, which is that first he must be practical. My youngest son is taking a course in a textile school, but I would not expect him to be picked after his graduation to be placed at the head of a department or a mill. Any man who is against any educational institution is a fool, for knowledge is power.

I think that one of the very few of your contributors who have understood "WASH" is "P. R. K. (MASS.)". Read his excellent article on page 80 of the March 1934 issue. I agree with every statement that he makes there.

As regards carding having more than its share of space in this department, this proves to me that the weavers are asleep at the switch. The reader will find at the head of this department a note from the editor inviting us to write what we have in mind, and stating that the department is open to all.

I like to satisfy every contributor of this department if possible, and so, just to please "CONTRIBUTOR NO. 6255", I will put four questions, but I hope no one will consider them as trick questions:

1. What changes are necessary, and is it good judgment, to take old looms and add at least 20 dobby harness?

2. What makes the vast difference not only in the quality of the workmanship but also in the weights of cloth that a loom will weave?

3. Regarding the weaving of a warp sateen, should it be woven filling side up?

4. How should the size of shed be determined on a dobby?

I have been a contributor and a subscriber to the textile press for over 36 years, and my hat is off to Mr. Ivar Moberg for his excellent series on loom fixing in COTTON. I hope he will give us a great deal more.

WASH (R. I.)

Causes of Bunches in Spinning

Can you add to the list of causes of bunches in yarn which this man has given us here? . . .

EDITOR COTTON:

I would like to submit a list of the things which we have found to cause bunches in the spinning room. Among these are:

All kinds of brushing down overhead while running.
Roughness of any part where the cotton has a tendency to cling and accumulate in bunches.
Carelessness of roving men when picking empty bobbins from creels.
Poor clearers on frames.
Top clearers loaded with lint.
Too long a nap on the clearer cloth.
The sudden dropping of clearers.
Opening windows carelessly on windy days.
Brushing down windows, side walls, posts, etc., without stopping the machines nearest the process.
Too high flourishing of the sweeping broom.
Roughness of the roving rod.
Using soft linty waste for cleaning where there is a chance for it to come in contact with the ends.
Careless cleaning of the top rolls.
Allowing top roll covers to become oil-soaked.
Careless cleaning of scavenger rolls, clearers, creels, tops, and creel parts.
Poor piecings by different help on all frames.
Fly waste of all sorts.
Broken ends running on thread board and flying into next end.
Dirty doffing boxes.
Starting a humidifier head that has been stopped for several hours.
Unnecessary running in all alleys, causing a current of air to start the fly waste moving.
Any commotion out of the ordinary, such as running, fanning, etc., shaking of the apron or skirt.
Waste on clothing allowed to catch on ends when piecing, creeling or walking in alleys.
Putting too much roving on the creels where not needed, causing roving to collect lint and fly waste.
A shiftless attitude of the men responsible for keeping these causes before them at all times and seeing that they are corrected.
The indifference of the men in charge of sections as well as some of the higher-ups.

The remedy is:

A wide awake overseer and second hand who are on their toes every minute looking out for just these causes, correcting them, and instructing the help how to overcome them. Also, impressing upon the help how important it is that the mill produce a yarn second to none for quality; what it means to the mill; and making them interested in their part, which is a big share. The complete success of perfection will be the result. It will do no good to discharge a hand unless he shows an indifference or will not carry out instructions faithfully. It will take a lot of patience on the part of everyone connected with

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the mill. The goal can be reached if everyone will lend a shoulder to the wheel and does the best that he or she can do to further the reputation of the mill for a perfect product.

CONTRIBUTOR NO. 6317.

"Wash" Bids Farewell to "D. E."

In this, his final letter answering "D. E.", "Uncle Wash" definitely discusses some of the card room questions and closes his case . . . . . .

EDITOR COTTON:

I have read on page 80 of the September issue of COTTON the reply of "D. E. (R. I.)" to my remarks which were published on page 104 of the June issue. I am surprised at "D. E's" comeback after the facts I had pointed out in my article as regards misleading the boys in this department.

"D. E." should learn that any person who will not accept what he knows to be truth for the very love of truth alone is very definitely undermining his mental integrity. I want to say seriously that his article is not worth answering for the reason that he is not qualified to discuss the subject, and I am going to prove it beyond any reasonable doubt. Remember this, that unless you are giving some sort of service to somebody, you are not doing your part. I am sure that the readers want helpful information on their work, and not guess work, which to my mind is injurious to the textile student. In this article I will prove my case with facts that cannot be questioned, and prove that "D. E's" articles are misleading.

Back in the February 1934 issue of COTTON, "D. E." stated in the first paragraph of his letter on page 113 that, "I am writing as one who went to night textile classes years ago." In his letter in the April 1934 issue, on page 106, in answering my 13th paragraph as to the best compound or differential, "D. E." said, "I can only say that the Houldsworth is O. K. for me as I have not yet had any experience with any of the new differentials which 'WASH' mentions, unless he means the disc type."

Is this truthful? Remember this, the first successful new differential was on the market in the early 1890's. The reader can here use his own judgment.

In the fourth paragraph of his letter on page 80 of September COTTON, "D. E." said, "Just now let me inform the reader that my purpose, as stated in previous letters, is to prove that 'WASH' is not precise when asking questions. Hence the trickery."

Well, let me inform "D. E." that if he can dig up a trick question since my first letter to this department, which was in the year 1913, I will mail him a check for $25.00. Now, let him prove his statement. I am tired of having these fellows who are unable to answer my logic call my questions trick questions. When I ask a question in this department I am always sincere, and they are always practical.

I never ask a trick question, as "D. E." would have you believe, and I have always answered all questions put, so how can a question be termed a tricky one when it is answered in a practical way?

What he states in his fourth, fifth and sixth paragraphs amounts to nothing, but answering him with reference to the matter of waste (page 81, September) "D. E." knows very well that this was done in the very mill he worked in. It was in the year 1927, and this is where I experienced the stock and threads collecting on the top of the conical beater shaft. I have already explained this, and experienced the trouble as stated, so it was not a trick question.

Taking up his 10th and 11th paragraphs, relating to a drawing frame having from 30 to 33 calender change gears, and with trumpets of the proper bore, when running very low grades of stock or waste or colored waste, when the web sags too much, we just set the second roll up to the front roll. However, if the setting will make the difference between the rolls less than ⅛-inch over the length of the stock, we change the calender pinion and spread the rolls. "D. E." poked a lot of fun at this, but I ask the boys to believe me when I say that this is valuable information and it is practiced in many mills.

For the first time in 21 years, I must say that I don't believe what "D. E." states in his 13th paragraph.

Now, let the reader get the following, for it is good. In his 16th paragraph, "D. E." proves his ignorance about roll drafting, when he states, "So on our friend 'WASH'S' draw frames there are not any such accessories as crown gears, but when he requires ½-tooth change he takes out the back roll gear."

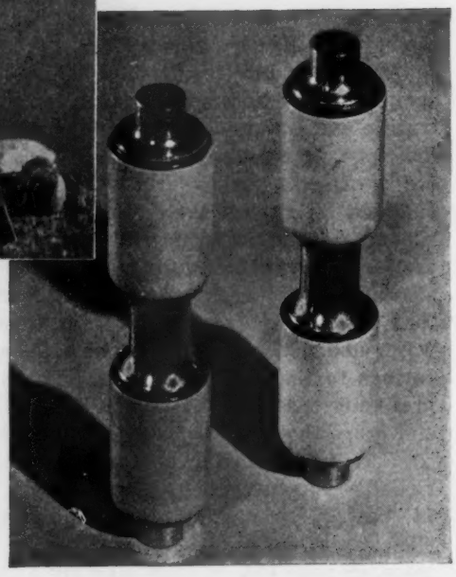
To my knowledge, no cotton mill has any front rolls or crown gears on hand. And any practical man knows that the crown gear is not changeable without changing the front roll gear. Please be reminded also that when you change either the crown or front roll gear, you change the draft constant. Is it any wonder that "D. E." does not understand the art of drafting?

In the 17th paragraph, "D. E." seems unable to see the point between the figured draft and actual draft. Go to any library in any textile city, and ask for the International Library of Technology, and obtain the volume on carding, and you will find a sketch therein with the following draft between the front roll and calender rolls: Diameter of front roll, 1¾-inch; gear on front roll driving calender train of gears, 24; carrier gear, 45; calender pinion, 30; gear on calender shaft, 24; calender diameter, 2-inch. The draft between the calender and front roll—$16 \times 30 \times 24 \div 24 \times 45 \times 11 = .969$ draft.

The International Library of Technology is accepted by the leading colleges of the world as a reference, and was edited by a great man and the founder of a couple of the textile schools in these United States, Mr. C. P. Brooks. Can "D. E." question that authority?

Does it not prove that frictional contact existed when that book was written as now? Was it not the sparker to the invention of the metallic rolls?

The actual draft is the retardation of the front top leather roll, due to frictional contact which causes the front roll to lag and results in a tight tension between the front and calender rolls. The naked eye cannot of course determine the amount of frictional contact, but



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you can obtain the average actual draft as follows: Draft is equal to the weight per yard going in divided by the weight per yard coming out.

So, it should be clear to the reader, that the heavier the sliver run, the more retardation of the front roll, and this of course creates more tension between the front roll and the calender rolls, and the only remedy is to have a figured draft less than 1.00 to create the proper amount of tension.

Now, on page 87 of September COTTON, "D. E." quoted this statement from my June letter: "That is why when running a heavy sliver [please note, a heavy sliver] you have to have a draft of less than 1.00 in order to cause slack." Then he made this comment of his own, "So, we need more slack when running a very heavy sliver than we do when running a light one! Well, I will leave it to the reader. Think it over."

If the reader does think it over, and he is a practical man, he knows that the lighter the sliver the less the frictional contact, and the less the frictional contact the less the tension, and therefore with a light sliver we have a draft of 1.02 or 1.03 between the front and calender rolls.

In his 19th paragraph, "D. E." gives us his true attitude of mind. He claims that I fell for what he terms a trick. This, coming from the man who has been hollering, "stop the trickery!"

In the February 1934 issue, "D. E." stated, "I would also urge 'WASH' to eliminate the tricky business and let us have facts."

Well, he is getting facts in this article—tell him to practice what he preaches.

"D. E." in trying to cover up his mistakes, states that if actual conditions force him to use the 32-tooth gear, I must say he is running a very, very light sliver. Then he goes on to say, "There was the trick. I reversed the actual facts at the risk of getting a slam from 'WASH'."

So, the slam follows:

"D. E." seems to forget that you are unable to change what is printed. That is what makes it so tough on the editors of most papers. In the February 1934 issue of COTTON, this is what "D. E." stated in the 12th paragraph of his article, "But if actual conditions force him to use the 30-tooth gear, I must say he is running a very light sliver.

That is a slam, for it states a 30-tooth gear, still "D. E." would again mislead the boys in order to get the best of the other fellow.

I have always praised every contributor to this department, and when I criticise, I do so for our mutual benefit and not just to get the best of the other fellow.

But did "D. E." fool "WASH" with his tricks? Let us see. In my article, which appeared in the June issue of COTTON, I stated, "Well, he proves it when he claims that I must run a very, very light sliver with a draft of .969." So, you see that I covered myself against his trickery, for, again, a draft of .969 calls for a 30-tooth gear.

In his 25th paragraph of his "short" article, "D. E." states, " 'WASH' gives me four questions in his June article, two of these I must ignore because they relate to that so-called frictional contact which he says exists, but has never proved that such is the case."

Let me state that I knew what I was about when I put the following two questions:

"1. Do you think there is more frictional contact between the front rolls and calender rolls in a fine goods mill than in a waste or colored mill?

(The above question was put just to see if he was truthful about his boasting of his long experience on colored work. He could not answer.)

"2. If there is no such thing as frictional contact as claimed 'D. E.', why is the claim made that metallic rolls are positive? If you reject the law of friction between these two rolls, then they too are positive."

So, you can see that "D. E." could not answer simply because that if he rejected the law of friction the leather roll would be just as positive as metallic rolls. The claim that metallic rolls are positive was allowed by the Patent Office at Washington and surely "D. E." would not dare question such authority.

In his 29th paragraph, "D. E." explains the English builder, but forgets that he commended "A. T. G." for stating the following in his article which appeared in the August 1933 issue of COTTON:

"The procedure as outlined by 'WASH' for changing the taper on a bobbin without changing the taper gear is wrong. If 'WASH' noticed any change on the taper of the bobbin it was his imagination coming into play."

I firmly believe that "D. E's" explanation of the English builder was copied from the article written by "T. R. (N. C.)" and believe me, "T. R." knows his business.

In the 31st paragraph, as regards the pressure of the paddle, "D. E." asks, is there anything wrong with what he said.

My answer is that there is plenty wrong.

No one can deny that for years I have preached on this subject, pointing out that the difference in pressure from the empty to full bobbins created unequal conditions on fly frames. My good friend Fay H. Martin worked for years with this in mind, and at last he has a cone on the market that equalizes conditions, and the result is a more even roving, and the time in my opinion is not far off when this will be generally adopted.

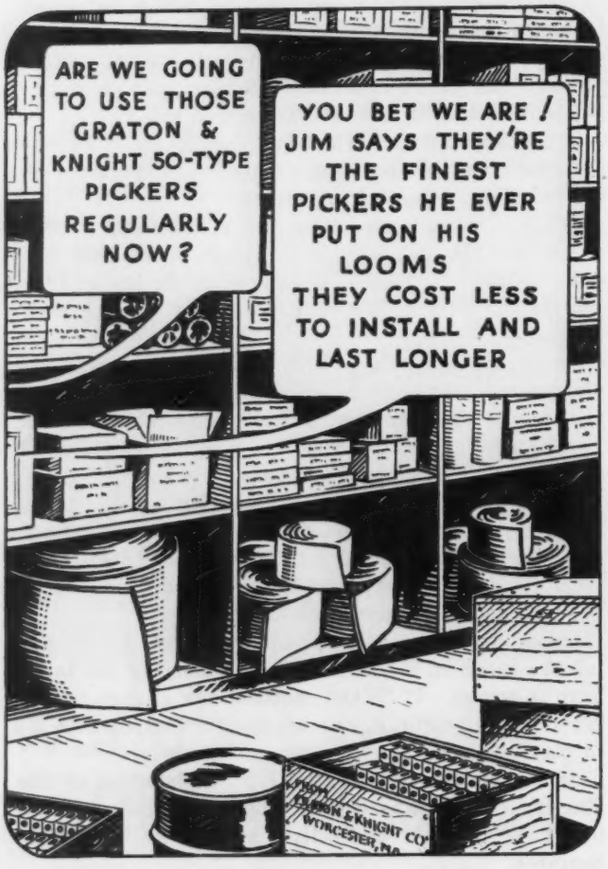
So, again, it should be proof enough to "D. E." that if a certain amount of pressure did not exist, the Patent Office would not have allowed the claim.

The amount of pressure at the end of the presser pad varies to the amount of 12 per cent from empty to full bobbins.

The Dunn flyer adds more roving on the bobbin for the reason that the weight found at the top of the presser increases the pressure at the end of the presser pad.

In the 34th paragraph "D. E." states, "Toward the end of his June article "WASH" quotes my question wherein I ask him how he figures that metallic rolls on draw frames only mesh at each end." What he said in this connection is not very convincing. What I stated was as follows, "The portion that does not mesh crimps the fibers, the meshing is done on the

OVERHEARD IN THE STOREROOM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Many of the largest mills in the South know this and get quality without paying a premium for it.

We will gladly send you full information, samples and prices. It will pay you to investigate

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side where the grip is, due to the driving power of the bottom steel roll. Metallic rolls ride on collars and there is always space in the center of the two rolls, so how can they draw?"

"D. E.", having no knowledge of metallic rolls, did not understand my logic, for he points out in his article that now we have learned that there is a slight curvature from each end of the rolls to the centers of same and this accomplished the crimping. No contributor ever pulled such a boner in this department.

As "D. E." does not understand metallic rolls, the following may help him: The operation of the flutes of metallic rolls is the same as that of the teeth of two gears meshing together. When a roll contains 24 flutes on its circumference for each inch of diameter it is known as a 24 pitch roll. It should be understood that a 32 pitch roll requires less overlap than the 16 pitch roll. So, we have on a 16 pitch roll .07-inch less than the diameter of the boss or fluted section. On a 24 pitch roll .06-inch less in diameter than the boss, and on a 32 pitch roll .044.

So, "D. E." should clearly see that the collars prevent the rolls from coming into too close contact, and a space exists at all times in the center of the roll, and the bite on the side of the roll.

To make it clearer to "D. E.", owing to the bite of the rolls being on the side, in setting the rolls or spacing the rolls, an allowance for this feature must be made. In other words, with metallic rolls the space between the rolls must be made greater than common rolls for the same length of staple.

In closing, I wish to state that when a man rejects the advice of such people as Dronsfield, I refuse to debate any more, and my case with "D. E." is closed, for the readers can see that he has a great deal to learn. I would advise him and other readers to obtain the following volumes: "Cotton Mill Machinery Calculations", Vol. 1 and Vol. 2, by B. M. Parker; "An Old-Timer Says", Vol. 1; and "Card Grinding in Theory and Practice", by Dronsfield Brothers. It is apparent from his articles that "D. E." has the third mentioned volume, and I think the other two will help him a great deal.

WASH (R. I.)

Japan—Your Competitor

(Continued from page 52.)

There remains to be seen what President Roosevelt can do with bargaining on a reciprocal tariff basis.

In the meantime, Japan, with her Western externalities and her Eastern internalities, forges ahead with the divine purposes of her traditions and religion ever in the ascendancy.

Have the boasted brains and political acumen of the West spent their energies and now helpless, lament the chaos while the subtle philosophy and frontier daring of the Orient rushes ruthlessly on in its successful adventure?

I hardly think so. The science, technology and power of adolescent America cannot be checked and thus forever stunt and dwarf the democratic ideals of freedom and self-assertiveness that we have enjoyed since the foundation of this republic.

Methods of Preparing Size Mixtures

EDITOR COTTON:

Answering the questions of "CONTRIBUTOR NO. 6332" in your September issue:

He first wanted to know whether it is better, in preparing a kettle of size, to start with a full kettle of water, adding all ingredients and then cooking, or to dissolve all of the ingredients in a fractional amount of the total water necessary, then diluting with additional water to bring the mix up to the required gallonage after cooking.

In preparing a kettle of size, it is best to put in right from the start most of the water that will be used. Next, put in the starch while the water is cold and mix for a few minutes until the starch is well mixed with water. Other sizing ingredients can then be added rapidly, the steam being turned on gradually so that when the boiling point is reached, within say 15 or 20 minutes, the size kettle is practically full, or at least the total amount of size is obtained, if possible, without the addition of further water.

The addition of cold water is in any case to be avoided, inasmuch as it has a tendency to congeal the size and produce lumps that are difficult to get back into perfect mixture. The addition of cold water after size is made tends to make an uneven size.

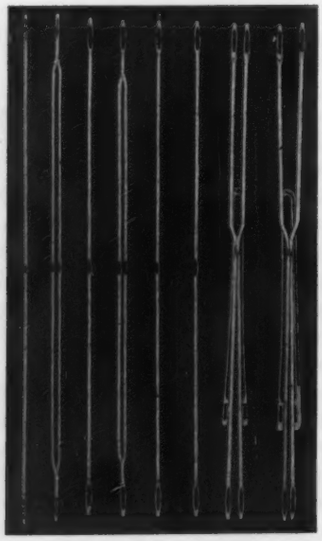
If water is to be used to dilute the size, only hot water should be used. If nothing but cold water is available, it should be added in such a small stream that it will rapidly warm up before it has an opportunity to congeal much of the size.

This man next wanted to know whether it is practicable to test the specific gravity of the size mixture in the size box for maintaining as near as possible a uniform density of the liquid.

It would be practicable to test the specific gravity of the size mixture with a Baume hydrometer, and such hydrometers exist with 1/10th degree graduations. Inasmuch as the size solution is very viscous, this is only possible in the case of comparatively thin sizing and if it is done, very considerable care should be used to see that the temperature of the size is taken into consideration inasmuch as the same size will vary in density. Also, that the size is free from air bubbles and that it is in a fluid state.

The best way to maintain as nearly as possible a uniform density of the size mixture is to have comparatively small size mixing kettles. The ideal condition is when the kettle of size can be used within an hour from the time it is finished, inasmuch as both stirring and heat have a considerable action on the fluidity of the starch. It is especially detrimental to the size mixture to be kept over-night or over week-ends. Some mills manage to produce only the amount of size required for a day and have so little left at the end of the day that they consider it the best policy to run this into the sewer, rather than keep it over-night or over the week-end and use it again. Others prefer to use such material, either as is, or to mix it with fresh size the next day. A starch mixture that has once congealed and has to be reheated is necessarily an inferior size.

CONTRIBUTOR NO. 6333.



What to seek in a HEDDLE

1st. It should be designed for the particular construction of a fabric regardless of texture.

2nd. It must fully take care of the size and respective fibre of the warp yarn.

3rd. The length, size of wire and formation of the eye must be in absolutely correct proportion for the fabric to be woven.

4th. The finish of the heddle must be absolutely 100% in order to avoid obstruction and chafing.

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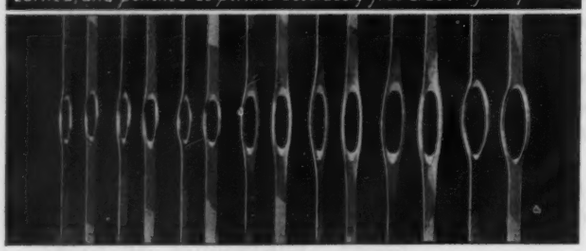
Here are shown a few magnified steel heddle eyes, so shaped, turned and polished to permit absolutely free travel of warp ends



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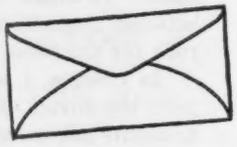

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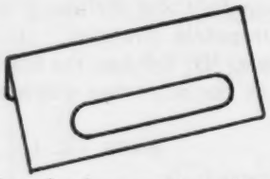

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ESTABLISHED 1893

Figuring Piece Rates for Slasher Tenders

EDITOR COTTON:

I note with interest the inquiry of "CONTRIBUTOR NO. 6312", in the April number of COTTON, regarding piece rates for slasher tenders. Having had some experience with piece work on beamers I would like to offer some suggestions, as I see no reason why the same principles will not apply to slashers.

The actual operation of beamers and slashers consists in the main of two logical divisions, namely, (1) the putting up of the set, including placing the warper beams on the stands, tying to the old set, adjusting ropes and weights, pulling over, putting in leases and laying in; this division we will call Creeling. (2) the actual running of the machine, doffing the full warps, getting up loose ends, other items incident to the running of the set, pulling off the waste and taking down the empty beams; this division we will call Running. Therefore, the idea is to pay for, (1) creeling time, (2) running time, to establish a standard for these operations and to apply it to every set run. Then naturally if a slasher tender or a beamer man runs a set in less time than the standard he will have earned his money in less time of course, can start on a new set quicker and in this way it will be possible for him to earn more per week.

For the purpose of this discussion we will have to establish some units of measure. The reader can adopt his own as best suits the conditions at his mill.

(1) For pay roll purposes I would base my rates at so much per 100 yards. Without going into all the reasons for this I find it much simpler to figure and for the help to understand. (For comparative cost purposes you can find the cost per pound by dividing the weight of the set into the amount paid for running it.)

(2) The rate per hour that you would like for your slasher tenders to make must be used in these calculations. This we will call the base rate, but you will of course understand that after the men are paid by the piece the rate they actually make will vary and in most cases will be larger than the estimated figure. In order to work an actual example I am using 40 cents per hour as the base rate. This will vary in the several localities.

(3) Creeling time must be established, which can only be done by timing a number of sets. Since the number of ends governs the number of section beams, the time of laying in, etc., we will use ends for a basis and for the purpose of this discussion will use 1,250 ends per hour, which simply means that on an average a slasher tender ought to put up and lay in 1,250 ends in 1 hour. This, of course, is only a hypothetical figure and will vary in each mill.

(4) In like manner running time must be found, this we will base on yards, that is the number of yards, on the average, that the operatives can run and doff an hour. This figure we will call 1,200.

Secure enough cards similar to the one shown in the illustration to time at least 1,000 sets. (It will require at least that many to secure a good average.) Do not time just one slasher, but when you start, time every set run on each machine until you have completed the test. The card is practically self-explanatory, the whole idea is to keep an accurate record of the time required to perform the two operations of creeling and running and of course to keep a careful record of the total number of ends put up and of the total number of yards run. This is important. Use any method of keeping the time that best suits your convenience so long as it is accurate. After an operative starts on a set do not mark him off until the task is completed unless he is sent out, goes out to lunch or something of that nature. In other words, if he catches up for some reason but you require him to stay in the room, *do not mark him off*, because when he is being paid by the piece you will still require him to stay on the job under the same conditions. When the set is completed, total the time required, (1) to creel, (2) to run, add these, multiply by the rate per hour you wish your tenders to make and you have the cost of running the set.

When you have completed the thousand sets, or the number you decide to test, get the total hours required to creel these sets and divide into the total number of ends put up during the test. Your answer will be Ends per hour, (which I am calling 1,250.) The total hours required to run the sets timed divided into the total yards run will give Yards per hour, (this I am considering as 1,200.)

Once you have established, (1) ends per hour for creeling time, (2) yards per hour for running time, (3) base rate per hour for tenders, you can immediately figure the price to be paid for any set you are about to run. I will illustrate by citing an actual problem:

Nº	DATE	SLASHER TIME CARD											
FABRIC		CREELING TIME						RUNNING TIME					
ENDS	YARDS												
CREELING TIME	RUNNING TIME	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
TOTAL TIME													
BASE RATE	AMT.												
RATE PER 100 YDS.													

Illustration of suggestion made in this article for a time card to be used in paying slasher tenders by piece rate . . . . . .

Example—Find the amount to be paid a slasher tender, and the rate per 100 yards, for running a set having 5,000 ends, 6,750 yards long, 1,250 ends per hour creeling time, 1,200 yards per hour running time with a base rate of 40 cents per hour:

"It can't be done," I SAID

"My steam-heating equipment is strictly up-to-date and (*so I thought*) as efficient as possible in operation.

"*But*—in 6 months time a Morehead Back-to-Boiler System saved $250 in fuel, to say nothing of speeding up production."

Here's the letter this steam user wrote:

"Before making our Morehead installation, it was difficult to understand where to expect all the saving to come from. However, six months after a Morehead had been installed it effected a fuel saving of $250, to say nothing of speeding up production.

"Picture a plant where all the pure hot drips of condensate are returned to the boiler at a temperature over 300 degrees, Fahrenheit, day after day, automatically, with no injector to fuss with, no lubricating oil to purchase, no feed pump to be cared for, and the cost of maintenance cut more than 80 per cent, and doubtless you will agree with us that a Morehead is quite worth while in any steam-heated plant." (*)

A Morehead system may increase production and save money in your plant. No matter what you use steam for—process work, heating, power, or all three—it may pay you to mail the coupon today. It will bring an expert in steam drainage and boiler feeding to your desk.

* Name upon Request.

MOREHEAD MANUFACTURING CO.
Department C Detroit, Michigan

I'd like to know the experiences of Morehead users and to find out what Morehead methods will save me.

*Name*_____

*Company*_____

*Address*_____

*City*_____ *State*_____ (561)

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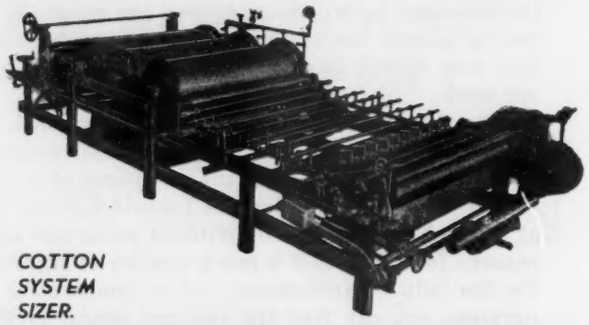
DEPARTMENT C DETROIT, MICHIGAN

NOW! *Perfect Control in Rayon Warp Sizing*

Special features in the new Johnson give such perfect control in every step in sizing, that this machine might almost be called an automatic sizer. A change gear box, for example, which replaces the old-fashioned cone pulleys, gives positive control of stretch and keeps tension uniform throughout warp. It also permits maintaining a record of tensions employed so results for any type warp can be duplicated later.

A quetsch pressure gauge indicates exact pressure on the warp in pounds and makes it possible to repeat the required pressure when similar warps are run.



COTTON SYSTEM SIZER.

Other features include: Improved Friction Disc Drive—Supplants slip belts. Automatic Steam Cut-Off—Regulates flow of steam to drying cylinders according to operating speed. Slow speed—Allows operator to quickly slow machine down to ½ yard a minute. Reverse Motion—Permits running as much of warp as desired back through machine. Cut Marker—Quickly adjusted to mark edge of any width goods and any length of cut. Speed Gauge—Shows yards per minute at which warp is being run. *Write for descriptive folder with complete details of machine.*

CHARLES B. JOHNSON

PIERCY AND HOLSMAN STS., PATERSON, N. J.
Representatives:
Carolina Specialty Co., Charlotte, N. C.
Joseph Barnes, New Bedford, Mass.
Universal Winding Co., Manchester, England

5,000 divided by 1,250 equals 4.00 hours, creeling time.
6,750 divided by 1,200 equals 5.63 hours, running time.
4.00 plus 5.63 equals 9.63, total time to creel and run set.
9.63 times .40 equals $3.85, amount set will pay operative.
$3.85 divided by 6,750 equals .057 per 100 yards.

Thus by applying this principle it is possible to figure the price of any set before running it. Once you have figured a set it will save work to make a record of it in a loose-leaf book, filing this information according to style of fabric, number of ends, yards, etc.

The next step will be to sell the idea to your help. You can readily see that your rate per yard or per 100 yards will vary so that it will be impossible to tell the operatives that they will get so much per 100 yards. For instance, suppose the set worked out in the preceding example was only 1,000 yards long. You can readily see that the "burden" of creeling, which is the same in both cases, must be carried by a fewer number of yards, so the rate per 100 yards will be higher. (And of course that is the reason you raise the devil when the office sends you an order with a large number of ends but calling for only a few yards and yet expect you to keep your cost down.)

Work this problem:

5,000 divided by 1,250 equals 4.00 hours, creeling time.
1,000 divided by 1,200 equals .83 hours, running time.
4.00 plus .83 equals 4.83 hours, total time to run set.
4.83 times .40 equals $1.93, amount to be paid operative.
$1.93 divided by 1,000 equals .193 per 100 yards.

Thus the set that is only 1,000 yards long will cost .193 per 100 yards as compared with only .057 per 100 yards for the set that is 6,750 yards long. While as you will see, the price for practically every set will vary somewhat, the method of finding the rate is constant. It may appear somewhat complicated at first but the operatives will soon learn it and will see that this is a fair measure of their work. When you give the slasher tender his instructions for running a set, figure in advance the time that it should take him to creel and run the set and the amount it will pay. In doing this you have set a task—something for him to work to. And the results will be most gratifying. You will see your slashing production go up as the men try to complete their work in less than the estimated time. And while their pay will go up as they put through more production your costs will come down in proportion. Regarding quality, to be perfectly frank my observation is that if a workman is careless and does slipshod work, he will do it regardless of the system by which he is paid. In other words quality is largely up to the overseer and his assistants.

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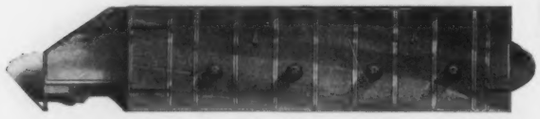
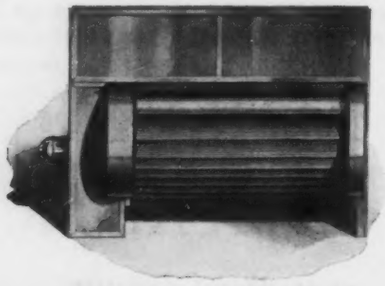


In 1923, it revolutionized the drying of wool stock, cotton, linters, rayon waste, silk waste, etc. . . . setting a new standard of design, performance, economy of operation.

Since then . . . for 11 years . . . it has outshone and outsold all other dryers for the purpose. More important, it has itself steadily and greatly improved.

In 1934, with direct motor drives, variable speed control, hinged-girt conveyors with traveling side guards, increased insulation of panels and framework, leak-free steam heaters, intensified air-circulation, all-metal feed, and improved details throughout, the Proctor Dryer is higher than ever above comparison. It best meets today's needs of maximum hourly output, minimum cost of operation, dependable performance that means uninterrupted working schedules.

And remember, Proctor high capacity ratings are based on performance facts repeatedly demonstrated, and are guaranteed in full measure for your plant. Write for full acquaintance facts.



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Important Notice!

Type K Machines Increase Production without Extra Work per Operator

In view of the Executive Order issued by the President on October 16 prohibiting increased load upon operators, we are interrupting a series of advertisements on *How Type K Bobbin Stripper Lowers Cost* to clarify any misinterpretation that may arise in your mind about the use of Type K in your mill.

The order clearly states a change may be made in the type of equipment used, provided the amount of effort of the worker is not increased.

Although the new Type K Machine increases production output, by cleaning 100 to 120 bobbins per minute, it does not increase the load on the operator.

This increased production is made possible by the improved mechanism of Type K . . . which permits the operator to devote a far greater proportion of his time to the productive feeding of the machine.

Leading mills in 19 countries today are using this efficient Type K Machine, because it increases production and earns a substantial saving yearly. You can effect great savings for your mill by installing Type K, and still comply with the provisions of the President's Order.

Write today, without obligation, requesting a Terrell representative to estimate the savings TYPE K *will make in your mill.*

the new **TYPE K** *Bobbin Stripper*

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MR. LUTHER PILLING, *Danielson, Connecticut, Representative for N. Y., N. J., Pa., New England States, and Canada*

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"Wash" Doesn't Like "K. Y.'s" Answers to His Carding Questions

EDITOR COTTON:

On page 105 of the May issue, "K. Y. (MASS.)" in answering several questions from me states in his last paragraph, "Now that I have answered 'WASH'S' questions I would like to give him a little advice. He should try questions that will bring out practical and useful answers, and not ask questions to trip a man up. If 'WASH' asks puzzles I shall ask him one later which I am sure will knock him for a loop, but in the meantime, why doesn't he try cross-word puzzles?"

This from a textile school graduate!

1. "K. Y." did not answer my question.
2. The questions will not trip all practical men.
3. Should "K. Y." put a question that I am unable to answer it would not be the first time that I failed, for I am willing to admit that there are thousands of questions I am unable to answer.

"K. Y." considers the first question a trick question. Trick means any fraud or stratagem to deceive. "K. Y." should learn that any person who will not accept what he knows to be true, for the love of truth only, is very definitely undermining his mental integrity. I never try to get the best of any contributor when I write, but instead I try to justly criticize every contributor and at the same time give the best there is in me for our mutual benefit. Please be reminded that questions properly answered are a benefit to all students.

Now let us study the questions that "K. Y." refers to and we will realize that textile graduates do not know all they should know about the mill game.

Question No. 1. "On the Houldsworth principle the bobbin and spindle travel together. Now, why do we have a difference of 10 teeth in the bell gear on all new differential motions?"

This is what "K. Y." calls a trick question. Here is my answer: You will not find a difference of 10 teeth in the bell gear on all new differentials. Let us figure one differential: $19 \div 30 = .6 \times 16 \div 48 = .2$ or 1/5. This means that we have a loss of 1/5 every time the driving shaft makes one revolution. To make up this loss, 10 teeth are added to the bell gear. So, it must be admitted that when a 50-gear drives a 40-gear that it requires more power from the bottom cone to drive the bobbin and will of course cause more cone belt slippage than a 40-gear driving a 40. For this reason of a difference in speed between the spindle and bobbin, the cones must be of a different form.

"K. Y.'s" answer to my second question is, in my judgment, perfect.

Question No. 3. "Which has the most drastic efficiency, the shell or solid roll?" My answer: Let us assume that we are running wiry stock or slightly over-twisted roving is fed, or we have uneven stock. A long single filament or a heavy portion of roving may check a shell roll, simply because it has no aid from the other boss as in the case of shell rolls.

Question No. 4. "If a 27-inch doffer makes 14 r.p.m. on a card, what should be the speed of the

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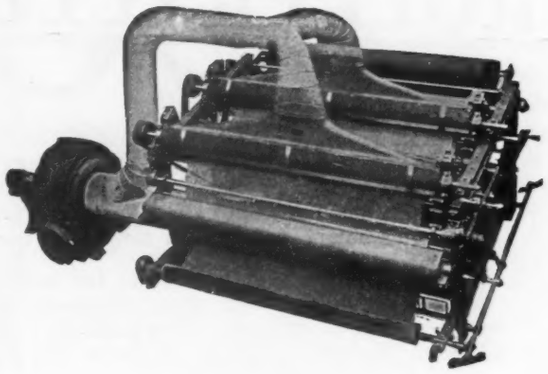

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The Hermas will save you many times its cost in a few months. Ask us to prove it. Write today for one of our clothroom experts to call and make a survey of your methods at our expense. Let us show you in dollars and cents how much a modern Hermas will save you in your plant. No obligation.

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Judge for yourself. A demonstration will be arranged whenever and wherever you say. There is a FINNELL representative near you who will gladly show you what this machine can do on your own floor. Simply write FINNELL SYSTEM, INC., 1312 East Street, Elkhart, Indiana. Canadian Distributors: Dustbane Products, Ltd., 207 Sparks Street, Ottawa, Ontario.

FINNELL SYSTEM
of FLOOR MAINTENANCE

comb pulley?" "K. Y." answers, "The proper speed is just enough speed to take the web off of the doffer. My comb pulleys run 1,800 r.p.m." Let us take a look at the H. & B. catalog. We find a band pulley 21¾-inch in diameter. Double band intermediate pulley for comb, 9⅜-inch diameter and 6-inch diameter. Comb box pulley 3⅜-inch diameter. We have: 175 x 21¾ ÷ 6 = 634 x 9⅜ ÷ 3⅜ = 1,760 r.p.m. maximum speed, which is to suit a doffer speed of nearly 18 r.p.m. Any carder that will drive the comb box pulley over 1,400 r.p.m. for a doffer speed of 14 r.p.m. could not work for me.

Question No. 5. "Why is a special cone belting required in the bobbin lead system?" My answer: The pressure of the paddle on the bobbin is nearly sufficient to keep the spindles up to speed. This would be an aid to the cone belt if the bobbin did not lead. So you see the cone belt is called on to drive the surface of the bobbin past this pressure. so for this reason you must have the best belting obtainable. No such condition is found on the flyer lead, because the flyer circles the surface of the bobbin.

In my judgment, "K. Y.'s" answer to Question No. 6 is perfect.

Now do you think the foregoing questions are trick questions?

Praises "K. C."

I want to take this opportunity to congratulate "K. C. (CONN.)" for his excellent discussion on page 98 of the May issue. In his fifth paragraph he brings up a valuable point as regards the size of the calender change gear. He says: "'WASH' claims that on the drawing, when the sliver sags too much between the calender roll and front roll, that one tooth changed in the gear which regulates the tension is too much. I don't think so. When this changed gear has 60 teeth or more, as some drawing has, it makes a difference if this gear has 60 teeth or half that number of teeth. I have changed this gear one tooth when the drawing slivers run too slack, and notice no drop in the breaking strength of the spun yarn. 'WASH' claims this trouble can be overcome by closing the rolls a little. What if the rolls on the drawing are as close as they will run already?"

The closer the setting, the more the friction between the top and bottom front rolls. So in case the calender roll change gears vary from 30 to 33 teeth, if the webs are sagging, we change the calender gear one tooth to increase the tension, and spread the rolls slightly to decrease the friction. Sometimes it is necessary to change the trumpet.

In answer to "K. C.'s" question as to the cause of black comet-shaped specks in Texas cotton showing up between the flutes on the steel rolls, my answer is that this may have resulted from over crowding the gin or from the fact that the gin was set too close to the bars of the grate which does make a mess of the stock. Again, there are a number of insects that visit the flowers of the cotton plant for the nectar they contain, and in an effort to reach the base of the flower where the nectar is found, their bodies become covered with pollen which is transferred from flower to flower, and after leaving the flower the dirt is left also which perhaps ac-

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of the superior quality of these three products is the steady increase in their use throughout the South. We are now serving over eighty representative mills. May we serve you, too?

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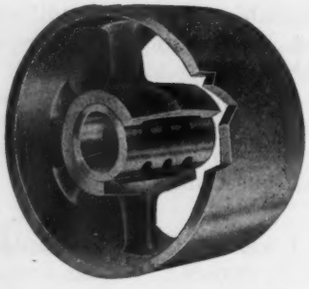

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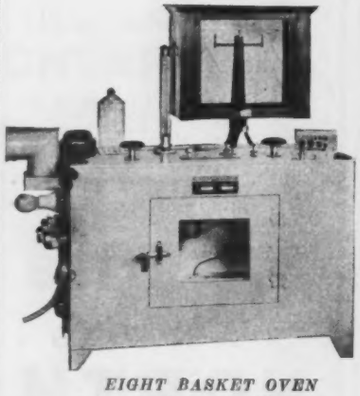

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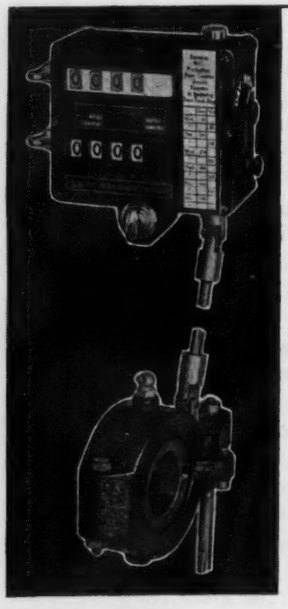


THE selection of a pick counter should be guided by these points.

√ Does it attach solidly to the loom shaft without drilling or removing any part of the loom?

√ Is it sealed so that the count can not be tampered with?

√ Are each of the shifts positively locked against creeping?

√ Is it carefully engineered, using high grade materials accurately fitted to stand up under the shaking of a loom?

Productimeter Loom Pick Counters check on all of these essentials.

DURANT MFG. CO.

181 Eddy St., Providence, R. I. 1922 N. Buffum St., Milwaukee, Wis.

Productimeter Pick Counters

Built to Withstand Loom Vibration

counts for the black specks.

Gives "T. A. B." Some Advice

Now let us turn back to the discussion by "T. A. B." on page 107 of the May issue. He is discussing that question about setting the front plate on cards. One would get the idea from his article that we have a machine shop at our disposal to move the plates up and down. Will he as a favor to the boys please explain what procedure he employs to move the front knife plate up or down? On what make of cards can he do this?

In his seventh paragraph "T. A. B." states, "I think if our friend 'WASH' would try a few settings at this point he would find there is a combing action between the licker-in and the cylinder." I would like to have "T. A. B." consider the following: You can brush off the stock from the licker-in teeth with the human hand. Next, at the point of action, the points of wire on both the licker-in and cylinder point upward. The surface speed velocity of the licker-in is about 1,000 feet per minute, while that of the cylinder is 2,000 feet per minute. Now explain to us please how the stock is combed at this point?

WASH (R. I.)

Commends Use of Flat Grinding Machine

EDITOR COTTON:

I read your "HOW OTHER MEN MANAGE" department with much interest. The practical discussions on mill problems contained in it are helpful and enlightening to those who are open to learn and those with ambition to get somewhere. The contributors of these discussions are to be highly commended for the generous and unselfish spirit they show in constructively endeavoring to solve the many problems for the benefit of those less informed.

While I am not a mill man, I do have, in my capacity as a "drummer" the opportunity to discuss carding with various mill men, and, being interested in the carding end of manufacturing, I was naturally impressed with "WASH'S" timely article on "High and Low Card Flats", on page 123 of the October issue of COTTON. It is my suggestion to any reader who may see this letter from me and who failed to read that article, that he look it up right now and do so.

Perhaps I should state, since I have confessed to being a "drummer", that I am not connected in any way with any makers of automatic flat grinding machines, but I am in hearty accord with "WASH'S" advice that, "All cotton mills should have at least one automatic flat grinding machine", which, as I have endeavored to point out many times to mill men, would be an investment paying good dividends in quality carding.

Carding is the backbone of cotton manufacturing, and the valuable information on this subject imparted by the ever generous "WASH" and others is helpful, not only to the textile school graduates and learners, but in the final analysis, to the manufacturers themselves.

H. M. (GA.)

"MEON"

THE IDEAL CONDITIONING AGENT

● WHAT IS A CONDITIONING AGENT?

The term "conditioning" - by cotton textile usage - refers chiefly to moisture content of the fibre. Briefly- "conditioning" is the addition of desired moisture to the fibre - in cotton, amounting to approximately 8% by weight.

Until recently, the method of conditioning consisted of placing the yarn in a room into which steam was injected. For several hours the yarn was thus treated and moisture slowly absorbed. For lack of an agent to break down surface tension of the water, rapid absorption was prevented. In more recent methods, rapidly moving, machine-actuated aprons have been introduced - to carry yarn packages thru a spray chamber in which a liquid conditioning agent is applied. Better results are thus given in an interval of a few minutes time.

● WHAT CONSTITUTES A SATISFACTORY CONDITIONING AGENT?

Requirements of a satisfactory conditioning agent are not always clear-

1ST. It should insure penetration of the liquid into the fibres - but this alone does not effect complete moisture control. Anything that reduces surface tension of the water will increase penetrating speed. Other requirements exist of equal or even greater importance. Many products serving to decrease surface tension, do not possess these other qualities.

2ND. A good conditioning agent should be practically neutral and odorless and must not only insure prompt moisture penetration, but must hold it in the fibre during later processes. Not all penetrants will do this- and mere proof of rapid penetration is not conclusive evidence of a product's worth.

3RD. Mildew must be prevented in the use of a conditioning agent. Without a guarantee of such protection by a reputable firm, mildew tests should precede actual operations.

4TH. Rust prevention is an essential factor of the ideal conditioning agent. Actual test of this feature can be made in 48 hours by placing an ordinary nail in a mixture of water and a few drops of the conditioner.

5TH. Varnish or other bobbin coatings should not be injured. Without such protective surfacing, bobbins will suffer the effects of constant moistening.

● SUMMARY

The Ideal Conditioning Agent has five distinct essentials -

- Prompt moisture penetration into the fibre.
- Moisture retention - through hygroscopic properties of the fibre.
- It must not mildew. • It must protect against rust.
- It must not attack bobbin surfaces.

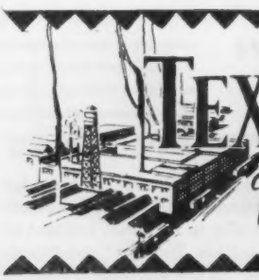
● "MEON"- An Ideal Cold Water Conditioning Agent HAS ALL THESE ESSENTIALS.

Manufactured by

BORNE SCRYMSER COMPANY

Originators of the BRETON MINEROL PROCESS for CONDITIONING COTTON

17 BATTERY PLACE · NEW YORK



TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any readers of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

10. Leathers, Textile—Booklet No. 101, 48 pages, illustrated. Showing "Bondaron" Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc., Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet, describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

15. The Powers System of Thermostatic Control—"Slasher room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein, Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. Akron Belting—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc., Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Why Cooper Hewitt Light is Better Than Daylight—A 16 page booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Elec. Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

66. Dronsfield's Patent Portable Auto-Feed tile Industry—A 50-page buyer's guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

73. New Reeves Catalog No. 99—A treatise on efficiency speed control—including valuable information of special importance to textile industry men and production executives outlining advanced methods of speed regulation. Reeves Pulley Company, Columbus, Indiana.

78. Booklet L 1289 A—Loom Motors and Control—giving details of the low installation, operating and maintenance cost of Westinghouse Loom Motors. Westinghouse Electric & Manufacturing Company, Room 2 N, East Pittsburgh, Pa.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

90. Atwood Booklet—Describing Atwood Winders, twisters, wire swifts, and various types of feed rolls—useful to throwsters interested in learning the principal features of various Atwood machines. Atwood Machine Co., Stonington, Conn.

92. Silicates of Soda—A review of the properties of silicates of soda and their various uses. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

95. Onyx Processing and Finishing Compound Catalog—A thirty-two page booklet listing and describing entire line of processing and finishing compounds covering every process on all types of fabric. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

97. Suggestions For The Modern Silk and Rayon Throwster—describing the various uses for Laurel Brand Products and giving valuable suggestions in silk-soaking, degumming, dyeing, sizing and finishing. Laurel Soap Mfg. Co., Inc., 2600 East Tioga St., Philadelphia, Pa.

99. Bulletin 177, Temperature Controllers. 48 page booklet describing and illustrating the various types of controllers, charts, valves, etc., and their industrial uses. Foxboro Co., Foxboro, Mass.

104. Warp Sizing. National Oil Products Co., Harrison, N. J.

105. Mildew Prevention. National Oil Products Co., Harrison, N. J.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk.—Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication. Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

110. 3-In-One for Industrial Uses—showing the many industrial uses and advantages of this oil. Three-In-One Oil Co., 70 Varick St., New York, N. Y.

114. Denman Parts for All Makes of Looms—showing drawings and dimensions of Denman pickers, hold-ups, bumpers and bunters made of fabric and vulcanized rubber. Denman Tire & Rubber Co., Warren, Ohio.

115. How to Cut Cloth Room Costs with Automatic Picking Machines and Improved Inspecting Machines—Hermas Machine Company, Warburton Ave., Hawthorne, N. J.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

119. The World's Finest Sewing Machines—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. Engineered Packages for the Textile, Dry-Goods and Apparel Industries—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd Street, New York, N. Y.

123. An Outline of History for Anti-Friction Bearings—a treatise outlining the development of anti-friction bearings from their earliest appearance in history to their present important position in industry. Fafnir Bearing Company, New Britain, Conn.

125. More Light with Lasting Cleanliness—a booklet pointing out the many advantages of white paint and the qualities to be looked for to get the greatest value in such paint. U. S. Gutta Percha Paint Company, Providence, R. I.

132. Houghton on Sizing Products—Thirty-two pages of valuable information on sizing of cotton warps and yarns. Gives detailed information on how to conduct sizing tests and contains tables for recording results. It describes the requirements of different types of yarn and gives actual formulas for producing desired finish. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

135. The Pick Method of Weaver Wage Payment—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms, and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

138. Constant-Level Oilers—Booklet, describing oilers which maintain correct oil level at all times, preventing burning out of motors and bearings. Gits Bros. Mfg. Co., 1851 S. Kilbourne Ave., Chicago, Ill.

139. Textile Detergents—Theory of the use of alkalis and control of pH.—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergents in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

140. Textile Machinery—Improvements in Design and Methods of Lubrication. A discussion of the problem of lubrication of textile equipment, covering operating conditions and factors affecting and affected by lubrication. Card Room Operations, Twisting and Spinning Machines, Silk Throwing, Looms, Knitting Machines, etc., covered. Available in copy of June 1934 issue of "Lubrication." The Texas Company, 135 E. 42nd St., New York City.

141. V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-Belt drive design of special V-Belt drives, numerous standard tables, charts, and belt and sheave list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

143. Winders and Winding—Describing the various processes in the preparation of cotton, woolen and silk yarn and illustrating and describing the different types of Universal winders and the various attachments to suit the particular winding requirements of the various branches of the textile industry. Universal Winding Co., 95 South St., Boston, Mass.

145. Never Buy Sponges in the Rain—a booklet outlining the importance of knowing the percentage of moisture in a given textile in the buying and selling of the same and in connection with the working of textile fibres in the process of manufacturing the goods, also showing different types of conditioning ovens for determining moisture content. Emerson Apparatus Co., 174 Tremont St., Melrose, Mass.

KNITTING SECTION

NEWS

HH NRP

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Reversing on single needles or multiple needles, the results are extremely clean cut.

The HH NRP (needle reverse plating) Machine makes available a greater market for this type of merchandise because of a tremendously increased pattern range and, of course, lower cost due to traditional HH efficiency.

The HH NRP Machine fills today's market demands.

"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"

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This hand-and-foot operated machine, introduced about 1589, remained the standard for full-fashioned knitting for more than 300 years. (From the Library of Textile Machine Works)

In a 40-hour week the new READING high-production twenty-four section forty-five gauge full-fashioned knitting machine produces nearly sixty per cent more volume and more than seventy-five per cent more value than the ordinary eighteen-section thirty-nine gauge machine.

TEXTILE MACHINE WORKS • READING, PA.

Eliminating "Washboard" Effects in Manufacturing Ringless Hosiery

By Henry W. Hoffmann

THE latest so-called improvement in the full-fashioned hosiery industry, namely the three-carrier alternating attachment for making so-called ringless hosiery has given the full-fashioned hosiery manufacturers a real problem because while this attachment does minimize the rings in a stocking, it does produce what is called a "washboard" effect in hosiery.

The causes for "washboards" in hosiery appear to be as numerous as the causes for sleaze, and, like sleaze, it means that many different methods must be tried before a real solution is found.

In writing this article I want the readers to know that I have not found the solution or cure but from my study of the three-carrier operation and my experiments on trying to overcome "washboards" I have learned many things about the general operation of three-carrier attachments that may be helpful to others.

I believe that most full-fashioned hosiery manufacturers will agree that mechanically there is little that can be done to produce stockings that will not have so-called "washboards". It is, therefore, necessary to start right at the beginning of the manufacturing of full-fashioned hosiery to remove all possible causes and that is the purchasing of the proper grades of silk. From this point the soaking of the silk, the throwing of the silk, the knitting operations and also the dyeing must be studied from every angle and operation to see if it is possible to find a way of reducing the number of stockings containing "washboard" effects.

The Buying of Silk Is Important

Take the first step in the manufacturing of silk hosiery, namely the buying of silk. I think the one mistake that was made at the time that "ringless" hosiery was first introduced was that some manufacturers believed that with three-carrier attachments, a lower grade of silk could be used. Since that time manufacturers have learned that the three-carrier attachments do not overcome the variation in the denier of the silk and that any lot of silk that is very uneven will produce a "washboard" effect, as three-carrier attachments do not eliminate rings caused by uneven denier but merely minimize the unevenness by alternating the threads in each course made.

Therefore, the main cause for "washboards" appears to lie in the variation in denier in silk and to me it seems that here is where a manufacturer must be very critical in the buying of silk. Everyone knows that the buying of silk to-day is a real problem and variation in denier is so common that sometimes the best silk that money can buy is no better in this respect than the poorer grades. However, in buying silk for the manufacturing of "ringless" stockings I feel that the most rigid test should be made on the raw silk so that one is sure that the silk used is the best silk as far as evenness is concerned that could be bought.

The Proper Soaking and Its Effect

The next step is the proper kind of soaking to use for knitting. This has been and I believe still is a real problem for the throwster, as there seems to be quite a difference of opinion as to whether the silk should be conditioned for knitting, or should direct knitting silk be used, and whether the silk should be soft or a little harsh. The proper kind of soaking of silk is very important as, in my opinion, the soaking of silk has a great deal to do with how much "washboard" effect is created, and next to the variation in denier in the silk, the soaking and conditioning of silk are the principal causes for "washboard" effects.

From experiments, I have found that the old style of soaking oils and soaps that have been in use for years in connection with preparing silk for the hosiery manufacturer are not adapted for three-carrier knitting, as silk soaked with these oils and soaps either had to be backwound or conditioned and one of the causes for making "washboards" in knitting is the uneven drying out of silk.

On single-carrier knitting a set of silk will run out within 24 hours of operation, whereas in three-carrier knitting the entire set of silk remains on a machine for three to four days.

It is practically impossible to have all cones remain uniform in moisture for three or four days and when three cones are on one section and each cone has a different moisture content, the result is a "washboard" effect due to uneven moisture and uneven tension as the silk thread leaves the cones.

Most throwsters have found that the old type soakings are not adapted for three-carrier knitting and the result is that most of the throwsters are using a soaking, which is called "direct knitting silk". Prior to the introduction of three-carrier knitting, not much attention was ever paid to the soaking bath in regard to acidity or alkalinity but with the use of so-called "direct knitting" silk, this is very important. A silk soaked in a bath containing a high alkali content will make the silk soft and at times will strip the gum or sericine so that it collects on the tension wire and rings and snappers and clogs up the carrier tubes. While this kind of silk will run dry, the trouble is that it will make what I call "shoe strings" or in other words uneven lengths, due to stretching because of

softness. The fact that the high alkalinity of the soaking bath has disturbed the gum, results in creating sleaze and this sleaze does not always show up in knitting but will show up in the dyed hosiery.

The dyeing of hosiery is also affected because in boiling off the stockings, the dyer has no control due to the fact that the gum was disturbed in the soaking bath and if the boiling off is not watched closely the stocking will appear raggy. To overcome all these troubles the silk should be soaked as near neutral as possible; but so far I have found that with silk only slightly on the alkali side that direct knitting is impossible and that silk of this type must be conditioned for a few hours. However, the amount of moisture necessary for silk soaked as explained is small and such silk usually contains enough oil so that very little moisture is required, resulting in evenness of tension while knitting and eliminating many of the washboards that would occur through using wet silk of the old type soaking.

Another type of soaking I have used that gave me good results is a silk soaked so that it would take moisture rapidly. In fact a drop of water placed on the silk would enter the silk immediately. This type of soaking holds the moisture for a longer period of time than the former type of soaking and when conditioned for about 12 to 16 hours will hold moisture evenly for several days.

I therefore say that in my opinion the proper silk to use for three-carrier knitting is either a silk with a high oil content that can be knit almost dry and at the same time not strip off the gum or a silk that takes water very rapidly and holds this moisture for a period of at least four days without drying out.

The Twist Plays Its Part

The number of turns per inch in the twisting of silk also will help to decrease the amount of "washboard" stockings. I find that the higher twist silks make less "washboard" than silks with a lower twist.

In making experiments on various twists I found that silk with from 20 to 25 turns per inch gave stockings with less "washboards" than silk with 12 to 15 turns per inch. I also find that using so-called "direct knitting" silks a higher twist makes a much better fabric or stitch and this no doubt is the reason why there are less "washboards" in stockings knit with high twist silk.

The Coning of the Silk

In the throwing operations the coning of silk is very important, if "washboard" effects are to be reduced or eliminated. In the past very little attention was paid by the throwster in regard to giving the hosiery manufacturer even tension cones. Some cones are wound hard and some cones are wound soft and naturally this will cause an uneven drag on the silk thread when leaving the cone. The throwster should now attempt to give the knitter more uniform cones and the cones should never be wound too hard. A device called a tensimeter for testing the density of cones is now on the market and I find that this works well in the hosiery mill as well as a throwing mill. In a throwing mill the use of this tensimeter, while silk is being wound on the coning machine, will show the operator at all times if a cone is winding too hard or too soft. In a hosiery mill, this tensimeter can be used to test all cones before giving same to the knitter and results in the knitter getting cones of a more even density.

The Proper Machine Settings

In the knitting of a stocking with the three-carrier alternating attachment the setting up of the cones, tension wires and snappers is very important if one wants to reduce the number of "washboard" stockings.

First of all, the three cones necessary for each section of a machine must be set in the humidor boxes or jars as near to the center of the sinker head as possible. Do not have the silk set in the boxes in such a way that there might be a pull or drag to the silk thread as it leaves the cones because uneven tension on the silk as it leaves the cone is one of the causes for "washboard" effects.

I find that the best moistening device to use for the moistening of the silk after the thread leaves the cones and before it enters into the carriers is the two glass float type with a wide moistening trough. This runs through the water and give an uneven tension.

The one important thing in reference to the moistening troughs on the machines is to see that the water is level in all troughs. A water leveling device should be installed so that the level of the water is uniform at all times. Unless this is done the floats will be in various positions, depending upon the water level in each trough and cause an uneven tension on the thread.

The proper setting up of tension wires and snappers is also very important, if one wants to reduce the "washboard" effects. The snappers should be set so that all three threads of silk are as near to the center of the sinker head as possible. The center snapper should be set directly in the center of the sinker head; then place one snapper each side of the center snapper and place these two snappers against the side of the center snapper.

By doing this, each thread will only be about one inch apart from the next thread and will give as even a tension as possible when the thread is being drawn across the sinkers by the carriers. If the make of knitting machine used has two snapper rods or in other words an upper and lower snapper rod, place the snappers on the lower rod as this makes the thread distance shorter from the moistening trough on the machine to the carrier and permits less tension on the thread as well as having a shorter length of thread to dry out when the machine is stopped for a period of time. The tension wires should also be placed close together so that each wire is directly in back of each snapper. The tension wires should be lowered so that they are as low as possible. The reason for this is that the tension rings should be in play at all times and should never drop down to the bottom of the tension wire. If the rings do drop down to the bottom of the tension wire it gives a back lash to the thread

as it is drawing across the sinker and this has a chance to make "washboards".

On most full-fashioned hosiery machines the brass ring is used for thread tension but I find that a little heavier ring should be used to keep the threads at even tension at all times. A bone or glass ring can be used in place of the brass rings.

The porcelain eyelets in the drip pans and moistening troughs should also be placed in direct line with the snappers and wires so that after the silk leaves the cone and enters the water trough, the thread has a direct pull with no angles.

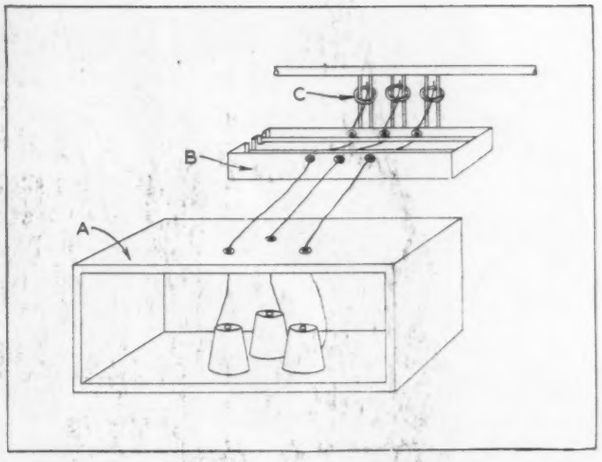


Fig. 1. (Rear view) Showing how cones should be placed in humidor box (A); trough with two floats (B) showing how thread should run straight with tension wire; and tension wires (C) showing wires as low as possible, also rings in suspension at all times

Use Finer Carrier Tubes

In discussing the matter of what size carrier tubes to use for three carrier attachment, I find that most all knitters agree with me that one should use a finer carrier tube than the gauge calls for. As an example a 48-gauge tube should be used in the three main carriers on a 45-gauge machine. Some knitters say that they use a 51-gauge tube. The reason I always felt a finer gauge tube should be used is that some of the "washboard" effect is caused because three carriers are used instead of one to make a stocking and each carrier is further away from the edge of the sinker head. This distance causes a slight uneven stitch with each course and by using as thin a carrier as possible and a finer gauge tube, this distance from the sinker head edge will be shortened.

One of the things that will do more than anything else to reduce "washboards" is to insist that the knitter, when changing a cone that has emptied, put up three new cones instead of replacing only the one that is empty. The other two cones can be used on some section where the cones are smaller. The reason this is especially important is that first there is always a difference in the tension of a larger cone against a smaller cone and, secondly, the small cone has been on the machine several days and no doubt has contracted somewhat through drying out, whereas the new cone is a freshly conditioned cone. Three cones of uneven size should never be run together on one section of the machine.

Mechanically it appears that very little can be done to help to reduce the number of "washboard" stockings. One of the parts on a knitting machine that should always be adjusted properly is the coulier motion. The coulier motion should never be set so that the carriers will draw across the sinker head with a jerky motion.

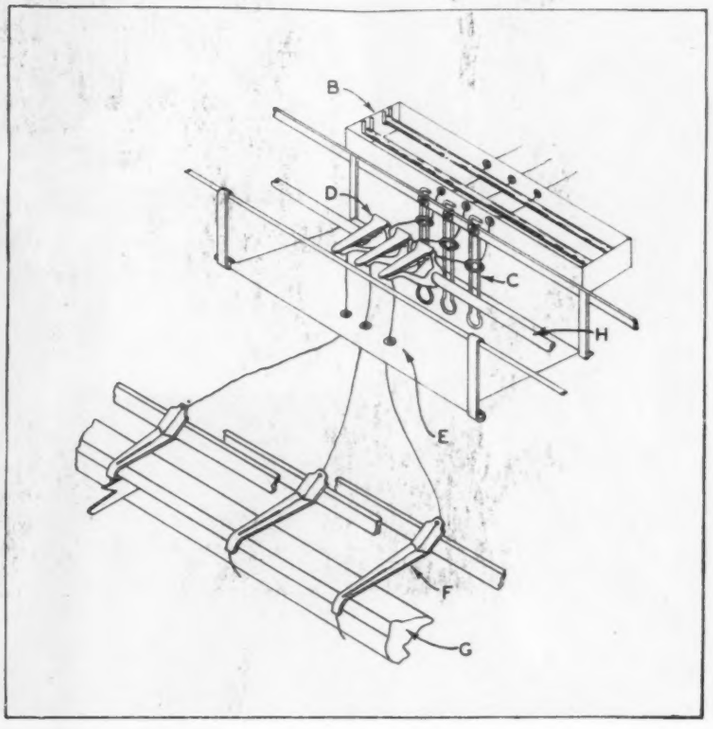
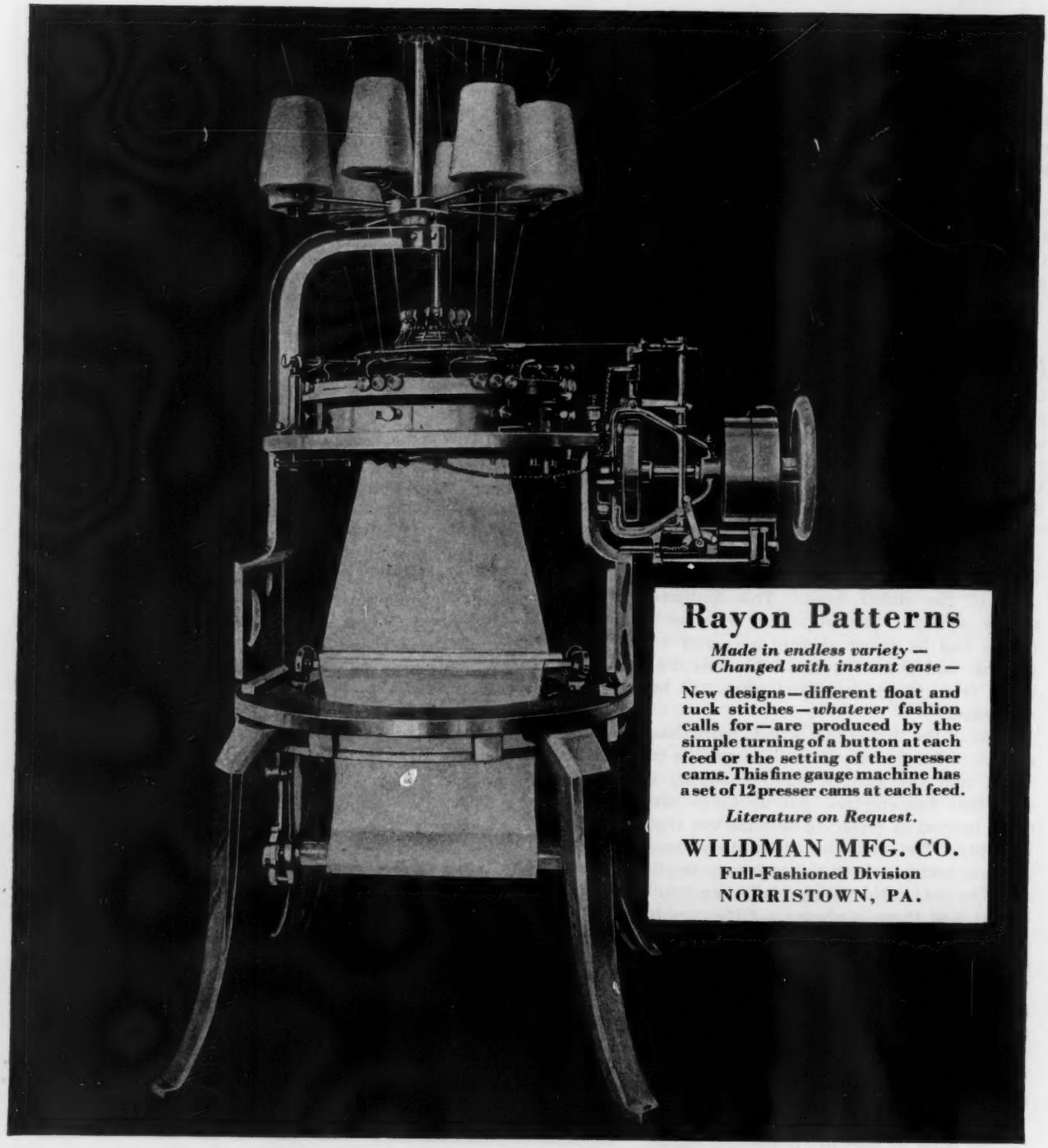


Fig. 2. (Front view) A, B, and C same as in Fig. 1. Here D shows snappers and how they should be put close together directly in front of sinker head. E shows drip pan with eyelets directly under snappers; F, the carriers; G, the sinker head; and H, the lower snapper rod . . . . . .

Frictions should also be examined regularly to see that they are neither too tight nor too loose. When setting carriers or replacing carrier tubes, be sure that the carriers are set so that the bottom of the tubes are all the same height at the top of the sinkers. I have found that carriers work very well when the carrier nearest the sinker head is a trifle higher than the other two carriers, as it seems that the carriers further away from the sinker head draw the thread more smoothly when these carriers are a little lower than the carrier nearest the sinker head. By all means be sure that all carriers on all sections are set alike and not have a different setting for each sinker head.

In making a full-fashioned stocking there are times when the knitting machine is stopped for topping, replacing broken needles, etc., and when such a



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Made in endless variety —
Changed with instant ease —

New designs—different float and tuck stitches—*whatever* fashion calls for—are produced by the simple turning of a button at each feed or the setting of the presser cams. This fine gauge machine has a set of 12 presser cams at each feed.

Literature on Request.

WILDMAN MFG. CO.
Full-Fashioned Division
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WILDMAN
SPRING NEEDLE BODY MACHINE

WILDMAN
THE WORLD'S STANDARD

stoppage occurs, needles must be wet before starting; otherwise a dry line will occur across the stocking. In many mills this was done for many years, but in three-carrier operation, there are now three cones of silk where formerly there was only one and it means five to six courses of dried out silk are entering the needles caused by this stoppage and unless moisture is applied to the needles, a bad line will be produced, which causes the stocking to become a so-called "second".

In the footing operation the one great problem in making "ringless stockings" is trying to match the foot to the leg. This operation I find must be supervised more closely than ever before, otherwise many stockings will become "seconds".

Smaller Cones for the Footer

In the footing operation the silk remains on a machine for a much longer period of time than on a legger and the longer the silk remains on a machine the greater the danger of "washboards" and the more difficult it is to match the stitch to the stitch in the leg. I find to overcome having the silk on a footer for too long a period of time it is advisable to have the throwster wind silk on cones for footing only, and make the cones only one half the size that is used on a legger. In fact the amount of silk on a cone for the footing machine should be such that the cones will empty in about three days after the cone has been placed on the machine.

In making the setting on a footing machine for cones, tensions, snappers, etc., be sure that the set-up is exactly the same on a footing machine as on a legging machine. In matching the stitch in the foot to the stitch in the leg greater attention than ever before must be given to the regulation of individual sinker heads on a legging machine as well as on a footing machine. I mentioned about a soft silk making so-called "shoe-strings", and this is one reason why I do not approve of too soft a silk for making "ringless hosiery" because of the difficulty in adjusting sinker heads for the proper number of courses in each stocking made and the trouble one has in the footing operation in matching the stitch in the leg.

My knowledge of dyeing hosiery is limited but in the dyeing operations we made certain changes that improved the finished stocking so that the "washboards" effect was not so pronounced on the surface of the stocking.

First of all, we made experiments in the boiling off of hosiery and found that by using a boil-off method whereby the boiling off would not be so rapid that this helped to prevent "washboards" from showing too much on the surface of the stocking.

In our own dyehouse, we always used the two-bath method of dyeing but in our experiments we found that a one-bath method with a low alkalinity in the boil-off bath gave us a better stocking as far as the "washboard" appearance on the surface of the stocking was concerned.

We also found that the finish to use is one that will lay the stitch flat and to obtain such a finish the stocking must not be too soft. My experience in connection with the dyeing has shown me that while the dyer cannot take out "washboard" effects, there are some changes such as boiling off and finishing that can be made in the dyeing operation that will lay down the "washboard" effect on the surface of the hosiery so that if there is any "washboards" in the hosiery it can only be seen by looking through the stocking.

I believe that all full-fashioned hosiery manufacturers will agree that the three carrier alternating attachment is one big step forward in the manufacturing of full-fashioned hosiery because a stocking with the so called "washboard" effect is a far better stocking in appearance when worn than a stocking, made on a single carrier machine, that was full of rings due to uneven denier.

The question is, can "washboards" be eliminated entirely due to the fact that uneven denier still enters into a stocking? At the present time I feel it cannot be eliminated but I do say that if greater care is taken in every step of making a silk stocking from the purchase of raw silk to the final finishing of the stocking. that the manufacturers will reduce the amount of "washboards" in the same way that sleaze in hosiery was finally reduced.

"Washboard" effects in "ringless hosiery" are receiving the same criticism to-day that sleaze in hosiery received years ago and it was only by eliminating the causes for making sleaze that very little sleaze in hosiery is produced to-day. No doubt by this same process of elimination of the causes for "washboard" effects, eventually a remedy will be found so that very few stockings made with three-carrier attachments will have "washboard" effects in them.

Knitwear Exposition
February 11 to 15

The Third National Knitwear Industrial Exposition will be held in Grand Central Palace, New York, N. Y., from February 11th to 15th, 1935. During the week, the National Knitted Outerwear Association will hold its Annual National Convention. Several important code meetings and the industry's annual banquet which is expected to attract around a thousand will also be held within the period of the exposition.

The following Exposition Committee has been appointed: C. J. Beamsley, Bradley Knitting Co.; James F. Briggs, Los Angeles Knitting Mills; A. P. Cohen, Suffolk Knitting Mills; Ben Friedlander, Bethlehem Knitting Mills; Alex I. Greenhill, Greenhill & Daniel; Reuben Grisman, Grisman Company, Inc.; Bernard Kaplan, Mayflower Knitting Mills; Sidney Korzenik, secretary, N. K. O. A.; Harold R. Lhowe, executive director, N. K. O. A.; A. Liebster, M & M Knitting Mills; Glen Osborn, Mayfair Yarncraft; Sol Reinthal, Bamberger-Reinthal Co.; Dan Rheinauer, New York Knitting Mills; Dan Starr, Central Yarn Co.; Sol Sussman, Sussman Yarn Co.; Bernard Wile, Rose Mills; and M. E. Thayer, exposition manager.

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In the final analysis, needles are bought for—and judged by—their ability to produce a quality fabric. That we are America's largest producers of Spring-Beard Needles and that nearly all manufacturers of fine quality full-fashioned stockings are standardized on Royersford Needles is a tribute to dependable performance.

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ROYERSFORD NEEDLES

KNITTING KINKS

Practical Discussions by Cotton's Readers on Various Knitting Subjects

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

What to Do With Short Lengths

How do you take care of short lengths in full-fashioned hosiery after boarding? . . . .

EDITOR COTTON:

One of the problems in the finishing department of our full-fashioned hosiery plant is short lengths in hosiery after boarding and what can be done with them. We would like to find out how other manufacturers handle this problem, especially if they place them into the class of "seconds", or can something be done whereby they can be made long enough to put into first quality hosiery.

CONTRIBUTOR NO. 6344.

Preventing Drop Stitches on Seamers

A kink for machines of the Union Special type, for eliminating drop stitches and skips in the chain .

EDITOR COTTON:

Here is a little "kink" that we have used on our Union Special seaming machine which has saved us a lot of imperfects and trouble and which might be of interest to your readers.

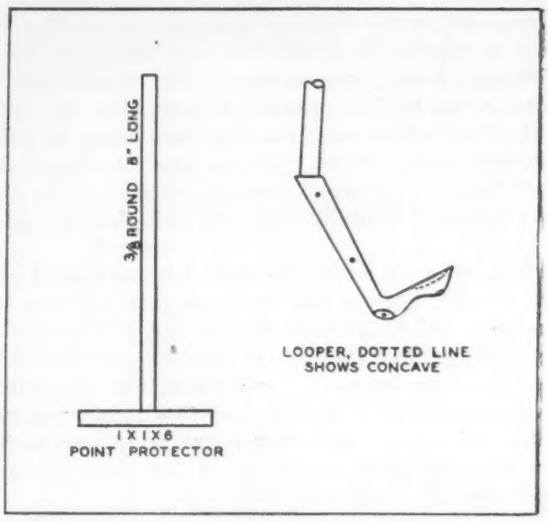
The looper or hook on a Union Special machine, when it comes from the factory, is flat across the top from the point to the elbow, and a lot of the drop stitches or skips in the chain are caused by the loop slipping off of the point after the looper has started to raise up from the needle. We devised a method of re-shaping the looper which has cut this trouble down considerably.

What we do (see accompanying sketch) is to concave the looper a little from the point back about ¼ to ½-inch. By doing this, the looper hangs onto the thread better and saves considerable in re-seams and imperfects.

The simplest and best way to do this is to take the looper off of the machine and clamp it in a vise; and then tear a few strips of emery cloth about ¼-inch wide and as long as possible, and then, by drawing the emery cloth back and forth with long strokes, it doesn't take but a little while to concave a looper. The reason for using emery cloth instead of grinding it out on the emery wheel is that the hook must be perfectly smooth and the concave must be gradual to both ends and not have any grooves or ridges in it, or the loop will not slide smoothly over it. Also, the edges should be rounded a little so that they will not cut the thread. This can be done at the same time the concaving is done.

The main thing to be careful about is not to touch the point of the looper with the emery cloth. A good way to keep from doing this is to take a small piece of wood and hold it on the point of the looper while rubbing the emery cloth over the part that is to be concaved. What we use for this is a piece of ⅜-inch round wood, flat on one end, and a flat piece about 6 inches long and 1 inch thick and wide on the other end, and then have someone hold it or rest it against your chest while the cutting is being done.

After the looper has been cut out to the proper



depth, it should be polished off very smoothly with some crocus cloth. The machine does not need to be adjusted different from what it was before. The sketch will give the reader an idea as to the location of the concave portion and the approximate depth.

CONTRIBUTOR NO. 6359.

A Discussion of the Parts of Scott & Williams Knitting Machines

Plates, 37-38-39

(This concludes the series of short articles discussing the machine parts on Scott & Williams machines, by taking up in order the various plates in the manufacturer's catalog with which all men using this make of machine are familiar.

The first article, on page 126, October, 1932 issue, covered Plate 1, Plate 2, and Plate 3; and the second article on page 86, November 1932 issue, covered Plate 4. The third article on page 97, December 1932 issue, took up the parts shown on Plate 5. The fourth article on page 94, January 1933 issue, covered Plates 6, 7 and 8. The fifth article, on page 101 of the February issue, covered Plate 9. The sixth article, on page 73 of the March issue, covered Plates 10, 11 and 12. The seventh article, page 84, April issue, covered Plate 13, and the eighth, page 89, May issue, described the parts on Plate 14. The ninth article, page 81, June issue, covered Plates 15 and 16. The tenth article, page 97, August issue, discussed Plates 17 and 21. The eleventh article, covering Plates 18 and 22, appeared on page 93 of the November issue. The twelfth article, covering Plate 28, was on page 95 of the January 1934 issue. The thirteenth article, covering Plate 29 and beginning Plate 30, was on page 98, March 1934 issue. The fourteenth article, on page 125, June 1934 issue, completed the discussion of Plate 30. The fifteenth installment, page 99, August, covered Plate 31. The sixteenth article, page 135, October 1934, covered Plate 40.

It is suggested that in reading these discussions, the reader turn to the plate in question in the catalog and refer to it while reading the comments found in these articles. Furthermore, it will be a good idea to clip these discussions and file them in the catalog along with the plates to which they refer.

The numbers in parentheses following the names of parts are the same numbers used by the manufacturers in referring to the parts in the catalog.—The Editor.)

Plate 37—Scott & Williams

The Fashion Seam Attachment

EDITOR COTTON:

The fashion seam attachment is briefly described on page 123 in the Scott & Williams catalog, and no doubt is familiar to all of those who know the Scott & Williams ladies' hose machines. The attachment, as stated in the catalog, produces a seam down the back of the hose which resembles the sewn seam on full-fashioned goods. Many mills use this attachment on all of their ladies' hose machines; others use the various makes of seaming machines built for this purpose.

It is not my intention to discuss the merits of one type of seam against the others, as each mill has its own ideas, and we all know that the buyer has a knack of getting what he wants more often against the wishes of the manufacturer. I will attempt in the course of this discussion to describe how this attachment operates and make a few suggestions pertaining to its care and adjustment for the benefit of those who are not thoroughly familiar with it.

Plate 37 shows a complete attachment for a Model K machine as supplied by the machine builder. The high speed gear (6321-4) is a duplicate of the gear in the machine except that it has been machined so the actuating cam (9145) can be attached to its side. The draw-down cam lever (5302) is moved into operating position by the crowfoot lever (5795) which in turn is actuated by the drum cam (42881). The inward and outward movement of the draw-down cam lever (5302) which gives the seam a broken effect is supplied by the actuating cam (9145) coming in contact with cam (6861).

A plain seam without the broken effect can be made by removing cam (6861) and adjusting the crowfoot lever (5795) so it will hold the draw-down cam lever fully in for making every revolution of the cylinder, thus wrapping the seam yarn on every course instead of each two alternate courses.

The original drum shaft in the machine is replaced by shaft (6508), which is long enough to extend beyond the frame and provide a bearing for the crow-foot lever (5795).

In fitting the draw-down cam lever (5302) be sure that it does not bind where the bobbin stand rod passes through it. See that it moves freely before attaching the spring (10090). The guide plate (9136) and guide screw (10089) prevents the lever (5302) from being sprung upward when the needles pass under the draw down cam (9137).

The guide screw (10089) should not be used to force the end of the lever (5302) upward or draw it downward in case the cam (9137) does not line up properly with the needle path. Due to its extreme length, it is often necessary to bend the lever (5302) up or down to make it fit properly.

The draw-down cam (9137) should be re-polished regularly to prevent bent or broken needle butts, the long butt needles especially will give trouble when the draw-down cams become worn or rough.

The inward and outward movement of the draw-down cam (9137), while the seam is being made, naturally increases or decreases the hold this cam takes on the needle butts as they pass under the cam to the lower needle level. It is important, therefore, that the draw-down cam be shaped and adjusted so it will have full control of the needle butts in both the in and out positions. Tapering the face of the draw-down

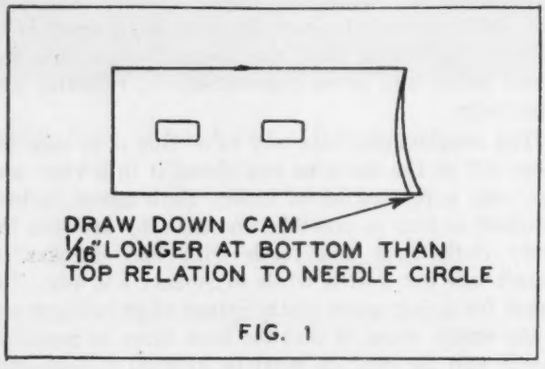
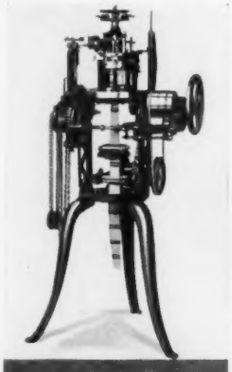


FIG. 1

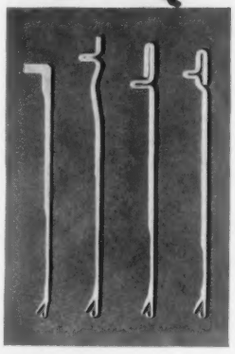
cam (9137) so it will be 1/16-inch longer on the bottom than on the top in relation to the needle circle as shown in Fig. 1, will be helpful especially in controlling

Fine FABRICS

Fine fabrics aren't easy to make. They require careful attention to details. The material and the instruments used in the knitting must be chosen with the strictest regard for quality. Fine yarn is essential. And good needles are indispensable. A good machine is necessary. With these three in the skillful hands of a good knitter, the result is faultless work—fabrics that reflect credit on the mill that makes them . . . and command admiration from the people who buy them. Good needles always pay. They make friends of the buyer and the seller. Torrington needles have many friends the world over . . . in every country where fabrics are knitted. For knitters know that Torrington needles are made by machine with all the accuracy and precision that modern methods have developed.



The socks with the fine lace tops shown in the illustration were made at the Locke Hosiery Mills, Philadelphia, on a Brinton Rib Lace machine with Piquot Edge 4 Color Yarn Change. The needles were TORRINGTONS.



The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

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1 When your bars arrive they are placed on individual trucks. They get a "job" number, and each job is kept intact throughout the reneedling; you get back your bars with plates reassembled exactly as received.

2 Reneedling by Torrington begins with a thorough cleaning of bars . . . by washing in a special fluid . . . by scrubbing, almost polishing, with revolving brushes especially made.

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4 Then we fill your bars with all new Torrington needles; straighten the needles; gauge them three ways—(a) at the spot where they emerge; (b) a quarter inch below the groove; (c) at the very top of the needle. We space the needles by gauge, not eye.

5 We raise the beards uniformly, and check them (with gauges, too) for height and for central setting with the groove.

6 We are equipped to do fast work. Bars received one day can be returned the next. Philadelphia is convenient to the Full-fashioned industry—easily reached by express, fast freight or truck.

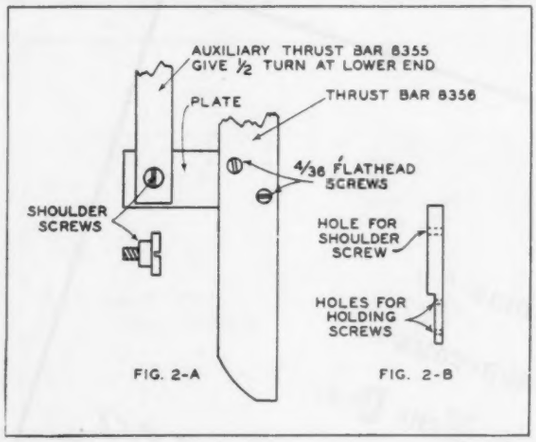
THE TORRINGTON COMPANY

ESTABLISHED 1866, TORRINGTON, CONN., U. S. A.

RENEEDLING BRANCH: 1640 FAIRMOUNT AVENUE, PHILADELPHIA, PA.

the short butt needles. By doing this, the hold or lap of the cam over the needle butts *increases* as the needles are drawn downward.

As explained on page 123 in the parts catalog, the stop screw (15759) limits the inward motion of the lever (5302), preventing the cam (9137) from taking the shortest butt (seam needles) down. The drum cam (42664) replaces a cam of similar length on the heel and toe drum track, the high part of this cam raises the thrust bar (8356), thus the auxiliary thrust bar (8355) with its lower end resting in the slot of thrust bar (8356) is also raised. As the auxiliary thrust bar (8355) comes up, it forms contact with the tail of the feed finger lever (5496) which is pivoted on the pin (6791). This motion lowers the feed finger (7728)



which is attached to the lever (5496) and throws the seam yarn into action.

It is frequently necessary to shorten the front of the high part of the drum cam (42644) due to the seam yarn engaging too early. When this is done, do not leave an abrupt step on the front of the cam as this will cause the thrust bar (8356) to bind while being raised and break it off at the slot. Taper the step on the drum cam and polish it so the thrust bar (8356) will ride up freely. Make sure that the tension spring (6968) will disengage the feed finger lever (5496) so the feed finger (7728) does not jam the gap closing ring (8358) when the machine starts making the heel.

Fig. 2 shows a simple way of attaching the auxiliary thrust bar (8355) to the thrust bar (8356) without slotting its lower end. This method prevents breakage at this point and saves costly jam-ups of needles and other parts. The device consists of a plate about 1¼-inch long which can be made from a discarded thrust bar. An offset is filed into one end of the plate, two holes are drilled and countersunk to accommodate two 4-36 flat head screws which hold the plate to the thrust bar (8356). The other end of the plate is drilled and tapped for a 10-32 shoulder screw, the lower end of the auxiliary thrust bar (8355) is given a half turn, and drilled to fit the shoulder screw. Fig. 2-A shows a side view of the plate and Fig. 2-B shows the plate with the thrust bars attached in their normal position.

A slotted gap closing ring (8358) is provided so the feed finger (7728) can come down between the latch ring and the needles. It is also necessary to file a groove in the latch ring in line with the slot in the gap closing ring. In filing the groove in the latch ring, see that it is merely deep enough to accommodate the feed finger and tapered off on both sides. Drop stitches in the heel and toe gores and instep and bent latches will develop if the groove in the latch ring is too deep and blunt at the edges. The dial cone (6967) is used only on old style dials which have a hub at the bottom and are attached to the dial spindle with a taper pin. The new style dial (9140) shown on Plate 31 does not require a dial cone. An additional yarn clamp (7419) is attached to the front of the dial cap to hold the seam yarn down and guide it into the regular yarn clamp and shears when it is disengaged.

The right and left raising cams (8361-8364) replace the two needle rest cams located on the cam ring and provide the necessary space for lowering and raising the needles while the seam is being made. The rack wheel tooth guard (9143) is used to idle the main pawl plate so the seaming attachment can be thrown into action at the proper time. The jig (9394) is supplied with the seam attachment to assure proper drilling of the holes in the rack wheel and correct location of the tooth guard (9143). In attaching the tooth guard be sure that it moves freely.

The take-up (6992), spring (1835), and take-up yarn guide (8423) control the seam yarn while it is being fed to the needles. Excessive tension on the seam yarn or the take-up spring (1835) should be avoided.

It is very important to keep the bottom of the dial smooth when seaming attachments are used on the Model K machine, as any rough surfaces are likely to cause the seam yarn to hang and give trouble. The double sole yarn will also be disturbed by the bottom of the dial being rough, causing the floating thread to become knotted or broken and making it difficult to trim.

Most of the roughness on the bottom of a Model K dial is caused by the spacings of dial stock directly under the dial bits being bent downward. Jam-ups of dial bits and needles during the hem make-up and transfer are usually because of the spacings being bent. The only course left open to the fixer when this occurs is to drive the bent spacings back and repolish the bottom of the dial. This, however, is only a temporary way of overcoming this particular trouble, a remedy but not a cure.

There is a way of overcoming this trouble permanently. It can be done by making a saucer-shaped disc out of sheet steel about 25/1000-inch thick and large enough in diameter to cover the spacings on the dial to their outer edge. A cone shaped hub is made to hold the disc firmly to the bottom of the dial. The hub is countersunk on the bottom so a flat head screw passes through the hub and disc into the dial spindle in the regular way. The disc will cover any rough surfaces on the bottom of the dial and will help prevent the spacings from being bent downward by supporting them from the bottom.

It will be necessary to make up a punch and die to be used on a punch press in order to make the discs accurately. The discs should be slightly larger than

To All our Friends--
We wish a Merry Christmas
and a Bright, Prosperous
and Happy New Year.
Robert C. Boger
PRESIDENT
BOGER & CRAWFORD
Philadelphia

the dial so they can be attached to the dial and spindle and trued up intact, to get a good fit. The device is shown in Fig. 3-A-B-C, it will eliminate the various troubles caused by dials being rough on the under side and increase the useful life of a Model K dial considerably.

Plates 38-39

The fashion seam parts shown on Plates 38 and 39 are known as L-6 and are used on Model B machines. Practically all of the parts shown are the same as those shown on Plate 37 with a few additional parts which are necessary when a seaming attachment is applied to a Model B machine.

In order to provide additional pattern drum movement, the auxiliary racking pawl mechanism is used.

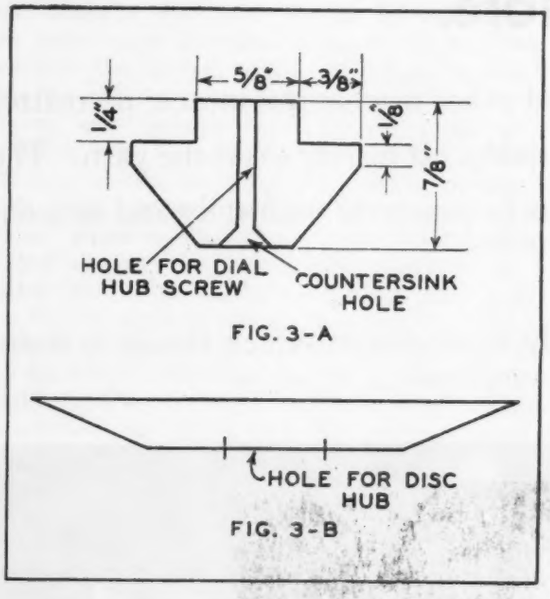


FIG. 3-A

FIG. 3-B

This consists of the following parts: The lever (5803), the pawl (6262), the pawl plate (7313), the racking pawl lever cam (6274), the pawl spring (6607) and the shaft (6507) on which the lever (5803) is mounted.

There is a slight difference in the shape of the feed lever (5199) and the thrust bar (9401) which actuates the lever, than similar parts of the L-8 attachment shown on Plate 37.

Both attachments are sturdily built, simple in construction, operation and adjustment, and do not present any really difficult problems for the machine fixer. I have intentionally omitted a discussion of the parts shown on Plate 36, this being the old style striping attachment. A newer and better device was brought out by the machine builders some years ago to replace this one. The crowfoot or front lace attachment shown on Plate 41 is not being used very extensively, to the best of my knowledge. The various attachments shown on Plate 42 have been in use for years and I am confident that even the apprentice boy of today is entirely familiar with them. The Richelieu rib attachment shown on Plate 43 and the drop stitch attachment shown on Plates, 44, 45 and 46 are used very little if at all in this day and time. However, they were quite the rage some years back and many thousands of dozens were sold on the merits of these respective devices. The Tipping attachment shown on Plate 47 has been used for many years in making

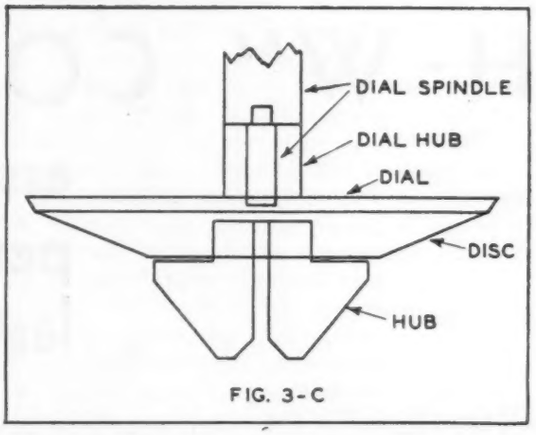


FIG. 3-C

infants' and children's numbers. It is a simple device, one of the main problems connected with it being the making of accurate yarn changes. The only major changes involved in applying the tipping attachment are the rack wheel (5429), the pattern drum (6061-Y) and the segment gear (6038). The remaining parts which are necessary are not difficult to apply or adjust.

Should any reader desire some information about any particular plate or attachment which has been omitted in this series of discussions, kindly get in touch with the editor and I will gladly answer questions to the best of my ability.

And now, "CONTRIBUTOR NO. 6038" is singing his swan song with the hope that some of you may have benefitted in a slight degree by my humble efforts, and with the desire that the space so generously allotted to me by the editor will now be filled with some really worthwhile material by writers far more capable than "CONTRIBUTOR NO. 6038" ever hopes to be.

CONTRIBUTOR NO. 6038.

Answers on Seamless Fixing

EDITOR COTTON:

In a recent issue, "CONTRIBUTOR NO. 6239" asked some interesting questions as to practice and experience in planning work to be done by the knitting machine fixers.

In these days of keen competition three factors are important in manufacturing hosiery and all three are directly related to the work which must be done in the knitting department. These factors as I see them are price, quality and service. I have not attempted to put them down in their order of importance, and it is not my intention to offer a set of cast iron rules along this line, but rather to relate some past and present experience for the contributor's consideration. Much will depend on whether the mill sells through a jobber or direct to the retailer and the type of goods being made. Generally speaking, the various problems involved are much the same in any mill, yet, for some reason or other,

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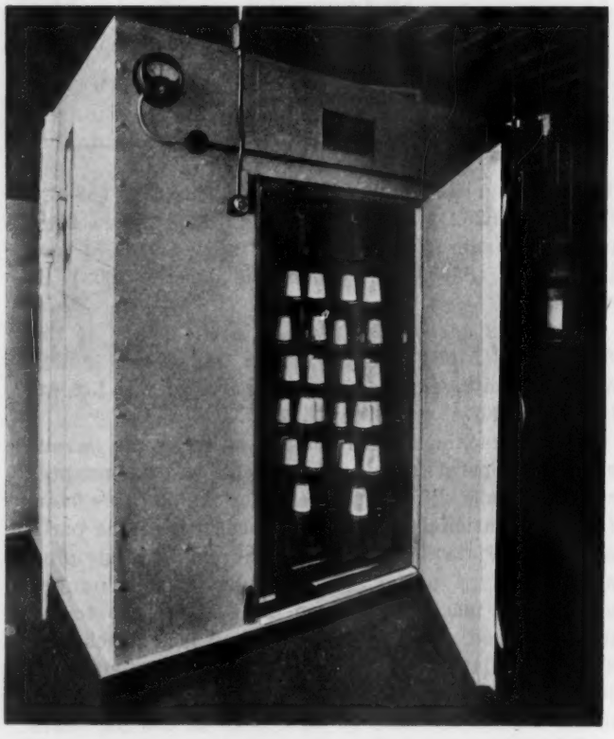

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a system of production which works out well in one mill will not work worth a darn in another.

The first question asked by "CONTRIBUTOR No. 6239" is: Do you find it a better method to give a machine fixer a certain number of machines to attend to the oiling, taking out bad needles and sinkers, or do you find it a better method to give him more machines with a helper?

By all means give him more machines and a helper. Why? Well, to begin with, it is poor economy to have a good machine fixer spend his time oiling machines when a helper can be taught to do this work just as well as the fixer at from one-third to half the cost. The same would apply to removing bad needles and sinkers, repairing belts, cleaning cylinders, repairing transfer rings and many other minor jobs about the knitting room. The fixer should be held entirely responsible for all the work done by the helper and he should make it his business to see that the helper carries out orders to the letter. The less chores the fixer has to do the more time he can spend keeping down seconds, waste, uneven knitting, bad sizes and the like. I do not mean that the fixer should spend his time visiting around the mill, going across the street to the neighborhood "dope" stand or sitting on the fire escape smoking cigarettes while his helper does all the work, but rather that he should be looking for trouble, keeping his machines in tip-top shape so that they will produce good merchandise at a reasonable cost. Thus the fixer can do his part toward maintaining price, quality and service to the customer. The value and security of his job is governed by the results he gets.

On the other hand, in order to be able to hold up his end the fixer must work with his brain as well as his hands and to accomplish this he *must have time to think clearly.* Therefore, he should not be disturbed all day with a lot of minor jobs which the helper can do. The average fixer has but one thing uppermost in his mind and that is to keep *all* of his machines *running.* When he looks after oiling and other details he will invariably give preference to machine fixing and let oiling, etc., wait until he has more time, which usually means sometime today or more often tomorrow. I do not mean that a good machine fixer does not realize the importance of a regular oiling schedule or that he intentionally neglects it, but it is one of the things which can be put off without causing any immediate trouble and for this reason it usually waits when the fixer has a bad day, which is quite often where men's fancies are produced.

The success or failure of a fixer and helper plan will depend largely on how well they pull together and that the number of machines they look after be in proportion to the manufacturing difficulties involved.

The second question asked by "CONTRIBUTOR No. 6239" is: In changing patterns do you find it a better method to have a special mechanic to do this work or to have the fixers themselves do it?

I am in favor of having the fixers themselves do it. Some mills have a special man who does all the pattern changing and when not busy making changes he helps other fixers or works on new patterns. Whether this is profitable or not depends on the size of the mill, how much changing must be done and how complicated the changes are. I am entirely in favor of having a special man work out new patterns and make up the original samples. He should also help the regular fixer make the changes and stay with him until the machines are running satisfactorily. Some little things are usually overlooked in making changes and if a special man does all the changing the regular fixer usually raises a fuss when he finds anything wrong. Fixers as a rule do not mind helping each other make changes, but they do resent constantly working behind one particular man, and it gives them an opportunity to "pass the buck", for in many cases they would perhaps leave as many or more little things undone if they were making changes for the other fellow.

Another reason why I believe each fixer should do his own changing or at least a part of it is that he loses a lot of valuable experience when a special man does all the changing. The fixer and helper plan works out well in connection with changing patterns as there are many details which the helper can take care of and thus give the fixer more time to do a good job on the more tedious and complicated work. As a rule it is profitable to have one man who understands knitting machines from A to Z in the knitting room. He should act as a head fixer and help the boys when things go wrong, make samples, get up new designs and patterns, help make changes and in cases of sickness or absence take the regular fixer's place.

The third question asked by "CONTRIBUTOR No. 6239" is: In having this work done by different mechanics do you have it done by the best men or the least efficient ones?

This question has been answered in part in my remarks regarding questions one and two. Since time, labor and material are involved it seems but reasonable to have changes made by the most efficient men. The knitting room foreman can best handle this end by laying out the work according to the respective qualifications of his men.

The fourth question asked by the contributor is: What do you find to be a good average for needle and sinker breakage per machine per day on work of this kind?

This question covers a great deal of territory and many factors must be considered in arriving at a reasonable figure. Some mills claim that they average two dozen per needle on men's fancies; some claim less; still others say they average two and one half dozen per needle. Much will depend on the kind of machines being used as well as the type of goods being made. Needle breakage will vary between the different types of machines such as reverse plaiting, spiral machines or needle wrap machines. Therefore, what might be considered a good average for needle breakage in one mill would be fair or very good in another. Two dozen per needle

appears to be a good average for mills making men's fancy goods.

Sinker breakage should not give a great deal of trouble on any type of machine. As a rule it is caused by badly worn sinker cams or sinker caps, accidents such as needles or other parts being broken by various forms of machine failure and last, but not least, by careless or rough handling of the transfer ring by the operators. Fixers have little difficulty in locating the various causes for broken sinkers which can be laid to the machine itself. However, the damage done by a careless or inefficient operator is quite a different problem. Usually when the operator is at fault, the nose of the sinker is broken and when the machine is at fault the butt is broken. The fixer can prevent a great deal of sinker breakage if he will keep the needles in his machines evenly spaced and in a perfect circle. He should not wait for the operator to ask him to do this, but spend a certain amount of time *each day* at this particular job, and keep at it consistently.

He should also keep the transfer rings in good shape. Some good suggestions in regard to the transfer ring and the transferring operation can be found on page 74 of the March issue of COTTON. Sinkers like all other machine parts will wear out but the bulk of sinker consumption should come from replacing worn out sinkers rather than broken sinkers. A good plan in replacing broken sinkers is not to mix new and old sinkers in the machine but rather to change all the sinkers and replace broken sinkers here and there with some which have been used. A great deal of streaky fabric can be overcome in this manner.

CONTRIBUTOR NO. 6240.

Tension Device for Splicing Thread

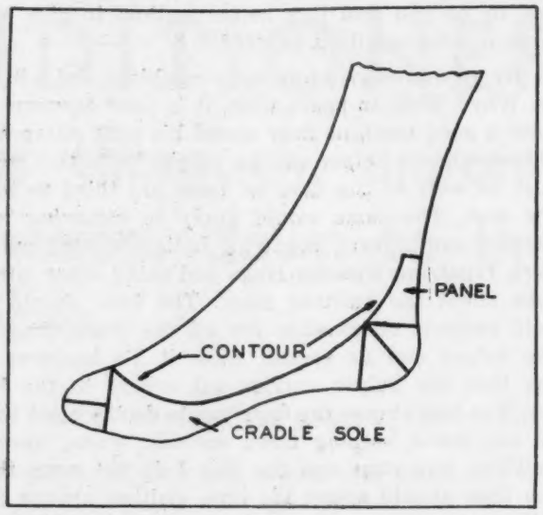
A "Kink" for relieving tension on splicing thread in the panel heel and cradle sole attachment on the Model K . . . . . .

EDITOR COTTON:

It has been sometime since I have been able to write for "KNITTING KINKS", and you can expect more material from me soon. I wish at this time to state that the new series of articles on the Scott and Williams machine which you have been running are very good and informative, and I am sure are appreciated by your readers.

A short while ago we equipped fifty of our Scott and Williams Model K 3½-inch 300-needle machines with the panel heel and crade sole attachments made for these machines by Scott and Williams. The contour of the panel heel and the cradle sole which we plaited with a 3-thread silk in the panel and sole and a 5-thread silk in the leg presented a tension problem for which we desired a remedy.

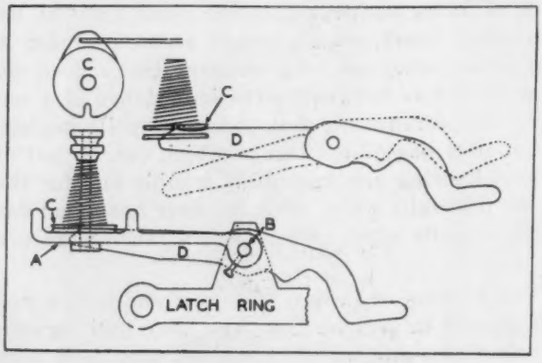
This stocking was knit as tightly as possible in the foot and due to the extra 3-thread which we used in the panel and sole for plaiting and reinforcement, made the panel and sole too tight, which resulted in the usual cut outs and made the percentage of imperfects too high to be practical. Now, the contour line of the panel and cradle sole is regulated by the splicing tapering attachment, and there was no way we could release the tension on the splicing or 3-thread silk as it was being fed to the needles, due to the contour line, as shown by the illustration. We could not use



the slackening cam to slacken the stitch, due to the fact that it would also slacken the fabric in that part of the sole that does not take the splicing due to the contour.

What we needed was a tension device that would release the tension on this splicing thread or 3-thread the moment the splicing finger comes down into the needles to knit, and tighten this tension when the splicing fingers come out of the needles to float, under the dial, until the next revolution. This tension device is automatically controlled when the splicing finger is in operation. With this device the tension release is applied *only to the actual needles which knit the panel and sole*, without affecting any other part of the foot which does not take the splicing thread.

The accompanying illustration explains a simple method which we are using and have found it to be very practical. A specially constructed bracket *A* is



fastened to the latch ring hinge pin on the left side of the latch ring. You will note the top disc of this tension is extended out on side *C* for the purpose of forming contact with the extension *D*, which is welded to the back end of the splice finger as shown in the sketch.

This splicing finger is in its regular position to the

left side of the throat plate. This position brings this finger directly below the tension device. The purpose of the extension on the finger is to release the disc tension directly above it. As the splicing finger goes into action, that is, goes down into the needles, the back end of the finger or the extension comes up and just taps the top disc, raising it slightly, with the result of releasing whatever tension there may be on this splicing thread. As this splicing finger comes out, the back of the splicing finger or tension comes down, tightening the tension again. Each time the finger goes up and down, this action takes place. The tightening action takes out all the slack in the thread as it floats under the transfer dial, and the slackening action or release takes all the drag off while the thread is fed to the needles.

CONTRIBUTOR No. 6345.

Points on Lubricating Transfer Rings and Using Oil Wick Cups

EDITOR COTTON:

I will attempt to answer the questions of "CONTRIBUTOR No. 6218". His first question is, What is the best means of lubricating the points of transfer rings?

We have in use at our mill about 200 transfer rings, including both coarse and fine gauge, and none of these receives a regular lubrication except when they are not in use. For storage purposes, we saturate a piece of rib fabric with knitting needle oil, dip the transfer in the same oil and wrap the fabric around the transfer carefully several layers thick.

We do believe in keeping transfers which are used constantly in first-class condition. The points are kept properly spaced and in a perfect circle as nearly as possible. All transfers are gone over regularly and worn, rough or damaged points removed. Practically every operator's transfers are subject to rusting, caused by perspiration which will injure the points and cause them to become rough. This can be counteracted by dipping the points in light oil and then polishing them on a rag buffer mounted on a high speed grinder.

There are several kinds of point paste on the market and some mills use tallow or vaseline on transfer points, which in many cases turns out to be a detriment. Very little if any such lubricant remains on the points after a few tops have been transferred, and there is a possibility of causing dirty transfer lines and dirty needle lines by such sticky lubricants coming off of the points while transferring. The problem of soiled goods would not be serious unless ingrain goods with white or light shades at the transfer were being manufactured. All of our operators are taught to cover their transfers with a top each night and over week-ends to help prevent rusting. We have yet to find where a regular lubrication of transfer points, as one would lubricate a machine, is of any value, but we have found a number of instances where it would be detrimental.

The second question asked by this contributor was "What results are obtained from the use of oil wick cups on knitting machines? On what types of yarn

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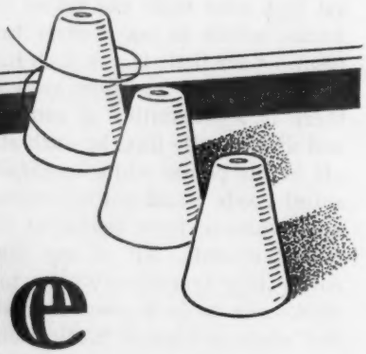

REPRESENTATIVES IN LEADING TEXTILE CENTERS THROUGHOUT THE WORLD

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and work are they being used satisfactorily? Which yarns should be run over the wick?"

Inasmuch as all three of these questions concern the oil cup, I will attempt to answer them as a whole. First, I would call attention to the fact that the three leading circular machine builders equip their machines with oil wick cups and in each instance they are placed so that the heel and toe yarns must be threaded over the oil wick. When new machines come from the respective builders the heel and toe yarns will always be found threaded over the oil wick. This then would indicate that the oil cup was put on the machine especially for the heel and toe yarn and incidentally that is where it does the most good.

The function of the oil wick is not to lubricate the needles (although it does that to a certain extent) but rather to lubricate the heel and toe yarns for the purpose of reducing seconds and waste. The heel and toe yarns are always quite a bit heavier than leg yarn and for this reason are more difficult to knit. Also there is more strain on the heel and toe yarns while knitting than on the leg yarn due to the mechanical element involved. Cones of heel and toe yarns stay on the machines much longer than leg yarns and therefore dry out more and consequently become less pliable so it became not only advisable, but necessary, to lubricate this yarn for best results.

Menders, seconds and waste can be kept lower with the use of oil wick cups than without, providing of course that the cups are filled regularly and the wicks kept soft and pliable so they will be sure to draw oil. Many machine fixers neglect this simple task and must be constantly reminded of it and the mill pays for their carelessness.

Most any kind or combination of yarn can be run successfully over the oil wick. We have run mercerized, combed, rayon and cotton twisted, rayon and wool, silk and wool, bleached mercerized, dyed mercerized, making both ingrain and dyed numbers, and in every instance the heel and toe yarns run over the wick. It is not advisable to run the leg yarns on ingrain numbers over an oil wick, as light shades are very apt to become oil stained and bleached numbers will go out of the picture entirely. If dyed numbers are being made, such as all mercerized cotton, rayon and cotton plaited or silk, it will be a great help toward prolonging the life of the needles if the leg yarns are run over an oil wick. A device far superior to an ordinary oil and wick has been on the market and it was designed to run leg yarns over it for the purpose of lubricating all of the needles.

CONTRIBUTOR NO. 6232.

Research on Textile Finishing

Dr. Edward R. Weidlein, director, Mellon Institute of Industrial Research, Pittsburgh, Pa., has announced that the Onyx Oil & Chemical Company, 15 Exchange Place, Jersey City, N. J., has founded an industrial fellowship in that institution. This fellowship, whose incumbent is Dr. Robert N. Wenzel, is concerned with the scientific investigation of problems in textile processing and finishing.

Dr. Wenzel has been an industrial fellow of Mellon Institute since 1927. He received his A.B. at Stanford University in 1916 and his Ch.E. the following year; subsequently, in 1928, after serving as a research chemist at the Monsanto Chemical Works (1918-1922) and after five years of teaching at Stanford, he was awarded the degree of Ph.D. by that university. He is a specialist in organic chemistry who is best known for his comprehensive study of fatty acids and related compounds.

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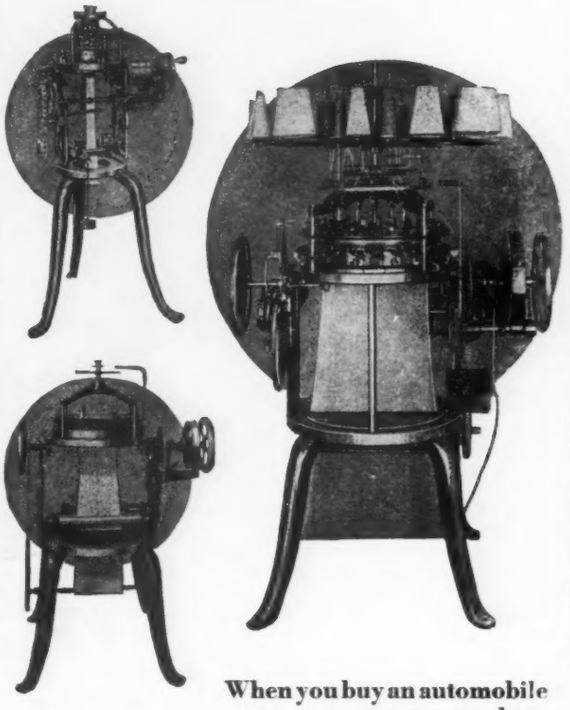

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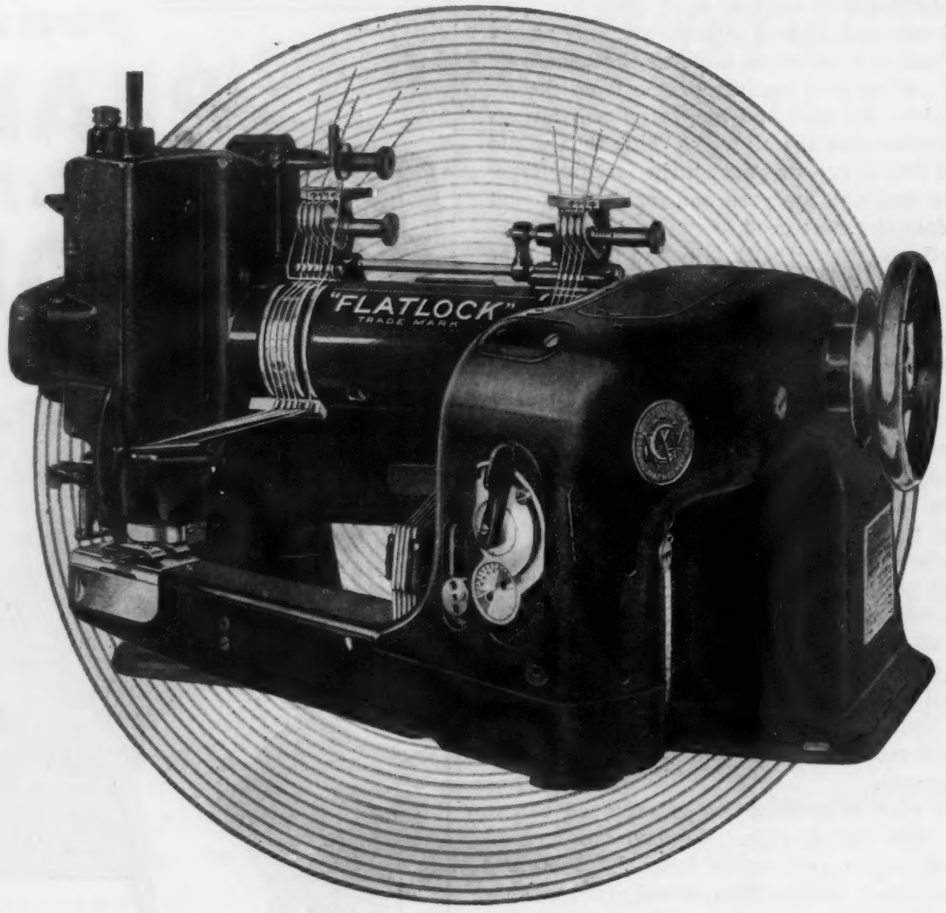

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THE KNIT GOODS MARKETS . .

DEMAND for moderate price silk full-fashioned hosiery continued so steady and persistent through October and November that it might appear that a slowing down on production of women's numbers that have been selling for $5 and less per dozen need not be necessary until very late in December, if even then, except perhaps to curtail the losses which some manufacturers are believed in the trade to have sustained during the Fall near-boom.

Innovations in Full-Fashioned

Some manufacturers, more particularly those featuring a construction innovation or in exceptionally good repute for character of product, were able late in November to obtain increases of 25 cents a dozen. They were fortunate in not having sold up their output at the starting prices of $4.75 to $5 a dozen, for 39- and 42-gauge. It seemed to most of the owners of plants producing this class of stockings that it might be better to book all orders possible while the booking was easy, and according to buyers for the trade, southern mills were a majority in acting on this belief.

The early volume sellers were, in November, delivering hosiery at their opening prices for the fall and winter period. It is a frequently heard opinion that had all hands accepted low price orders with the same conservatism that is characteristic of buyers in a moderately high price market, their current and nearby shipments would be in no less volume. Another opinion is that price stimulated buying, has kept a great number of mills busily engaged and provided employment for an increased number of knitters; that had manufacturers priced their goods adequately at the start they would have encountered such resistance from buyers that distribution might be but little improved over September, when the lightest producion for any month this year, with one exception, was sufficient for taking care of effective demand.

It develops that during the late summer, stocks in many of the retail stores were reduced, as a measure of safety for tiding over a period of uncertainty as to a threatened strike in the hosiery industry and outcome of a movement for a shortened work week. When, therefore, the fancied danger had passed and buying for the retail trade was actively resumed, there was a scurrying for goods that gave manufacturers an incentive for going ahead on a scale approaching normal. In fact, to some important distributors to leading retail stores it did appear in November as if retailing was more nearly at a normal stage than at any time in several years.

A part of the increase in stocks of hosiery in mills at the end of September, by around 1,750,000 dozens over the beginning of the month, as reported to the Department of Commerce by identical manufacturers, doubtless could be rightfully attributed to a scare among manufacturers facing a threatened strike and a loss of work hours. In any event, some few are known to have accumulated rather heavy stocks during the month. One of the more important in Pennsylvania found it expedient late in October to reduce production of 48-gauge goods, according to seemingly trustworthy reports, following later with a shutting down in both the 48- and 45-gauge departments. When, in November, interest in the better classes of women's full-fashioned for the holiday shopping season became manifest, the mill was able to ship from stock, promptness in deliveries evoking flattering comment from buyers for some of the more important retailing establishments. There was report of widespread complaint, at the time, of delayed deliveries of full-fashioned hosiery on the low edge, for stores that continued throughout the month to feature price.

A Philadelphia department store exploited a silk full-fashioned professed last month to believe their mills were to be first grade, while another described a 25-cent offering as seconds. What the public was left to infer was that firsts were not scarce at 49 cents. A so-called ringless number was priced so low—47 cents—as to arouse suspicions in the mind of a salesman for a well-known mill. He conducted a quiet investigation, after which the stocking in question disappeared from sale.

Sub-normal prices in shopping centers were said to make it the more difficult to maintain adequate prices for better types of standard construction. John Wanamaker's met the issue by displaying true ringless at 75 cents a pair, $1.15 and $1.35, the price range applying to varying gauge in chiffon and five-thread. An alleged 45-gauge was tagged 45 cents a pair in a Philadelphia price "shoppe".

Numbers of manufacturers of the coarser gauge full-fashioned professed last month to believe their mills were assured of steady operation to the end of 1934. There was noted, however, a disposition of some to taper output, assuming that if continued demand be felt, slight increases in prices might be obtainable.

Much of the November buying for spot and nearby delivery was for promotion sales, which have come to be an every-day occurrence with so many department stores that the public seems to regard them as something to be looked for in the regular order of retailing. It was felt by some observers that while these sales have been an important factor in wide distribution they will not materially affect routine holiday shopping, and that toward the close of December, stocks of the higher price numbers will be as much depleted as dealer holdings of the moderate priced. As late as after the middle of November, 42-gauge hosiery of standard construction still was available at $5 a dozen, although some mills were able to maintain a price 25 cents higher. For 39-gauge, maximum price seemed to be $5, with offerings at $4.75. One establishment was quoting $5.25 for its high grade 39- and 50 cents less for low-end.

Chain and Shoe Store Interest Is Decreasing

Chain shoe stores are reported showing less interest in hosiery since so many of the exclusively hosiery shops and department store basements are showing women's full-fashioned at, in some instances, low prices for seamless. It is noted by sellers and is the boast of an element of the consuming public that very good values are obtainable in some shoe shops continuing to carry hosiery as a leader. It is understood in the trade that, as a broad proposition, shoe stores find hosiery as a side line no longer profitable, considering the liability to returns and the fact that hosiery stores have become almost as numerous as cigar stores and counter luncheons with drug stores as a side feature.

Low ratings on silk full-fashioned hosiery obviously have made for keener competition for seamless knit, with the result that quotations are down to bed-rock for some of the finer gauge numbers. Somewhat recent comment in the primary markets is to the effect that rayon lines of seamless are going forward at the expense of both silk and cotton numbers. Yet there is demand for used seamless machines, for both women's and men's. Several up-state Pennsylvania manufacturers in the market for such machinery say additional equipment is needed for a better balancing of their plants. One customer for used circular machinery says that in view of low prices, he has the alternative of closing his mill or adding more machinery in order to reduce his overhead. Dealers in second-hand equipment say it is easier to supply the demand for seamless than that for full-fashioned. Manufacturers offering the latter, to make room for late models of high speed equipment, are asking considerably stiffer prices for the antiques than a year or more ago.

Children's and Infants' Lines Very Active

Some fastidious wearers of wool half-hose are heard, on occasion, to profess wonderment why they cannot find domestic makes in the better stores featuring men's lines. When they marvel at what appears high prices, they are reminded, "These are imported." The explanation of some retailers for having none of American build is, "We have no call for them." It does appear that either wearers of wool hose prefer the imported or that American manufacturers are shy of their market and are underproducing. An erstwhile manufacturer of all wool, and silk and wool hosiery, says he gave it up because of fluctuations in wool, which make a short production season extra-hazardous from the standpoint of first getting the orders and later the possibility of cancellation.

Probably no division of the hosiery industry has been in a better merchandising position during the fall months than that devoted to children's lines, from anklets to knee-

The STANDARD • COOSA • THATCHER Line

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Preemo Durene
Selo
Combed Peelers
Combed Saks
Carded Peelers
Threads

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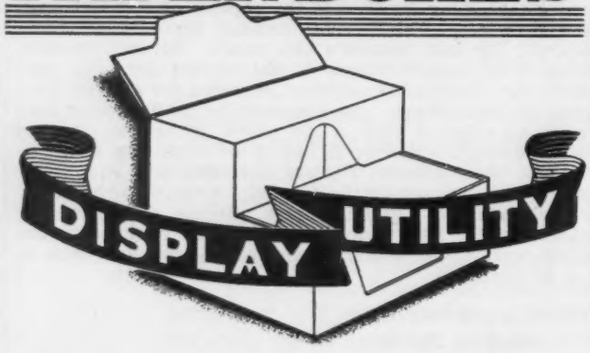

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high stockings. Shipments have at times been in greater volume, but, it is stated, there appears a better balance of demand and supplies. This might seem to be contradicted by strikingly low prices prevailing for goods for the moderate price brackets. As in women's full-fashioned, buyers were in the market early for their fall purchases, with a strong leaning toward numbers to retail at 25 cents. Manufacturers are not piling up any great amount of profit on juvenile lines, being less fortunately situated than those producing infants' socks.

Infants' lines have become largely a product of strictly modern equipment adapted to a virtually illimitable number of colors and yarn mixtures. The business is concentrated among fewer mills than a few years ago, and the manufacturers are credited with being one of the best organized groups in the hosiery industry.

All during the November market activity, New York and Philadelphia were rated in the trade as the slower markets for hosiery, New York ranking lower than Philadelphia. There was a better outlet in Baltimore, Washington and some of the southern cities for women's stockings of the better types.

Will Trend to Long Pants Affect Knee-Length Hose Sales?

Some manufacturers of boys' golf hose and knee-length stockings on the conventional order profess to feel some alarm over propaganda in the clothing trade for long pants for boys. While boys ordinarily feel that the wearing of long pants represents promotion to man's estate, the long trouser movement, attempted five or six years ago, caused no perceptible decline in the demand for knee length stockings, which at that time were less attractive in design than at present.

The Hosiery Situation, Statistically

Statistics of the hosiery industry were not needed to attest to relatively bumper production during the 1934 Fall months. But statistics do account for a necessity for speeding up production in manner as chronicled promiscuously. And it is gratifying that compilations by the Department of Commerce and the Hosiery Code Authority of the National Association of Hosiery Manufacturers are in accord on vital matters as to September in comparison with the preceding month. Figures for comparison of September this year with the corresponding month of 1933 emphasize the importance of the data as to the consecutive months of 1934. Leaving out comparison of statistics, business in hosiery as a whole shows marked improvement for the last quarter of 1934.

As noted by the Hosiery Code Authority, shipments of hosiery in September exceeded production, for the second consecutive month. Stocks at mills at the end of the month were lower than at the beginning. While production and mill stocks declined from August, September shipments also fell off.

According to a tabulation by the Hosiery Code Authority, shipments during the three months July to September inclusive were but 81.3 per cent of those for the corresponding period of last year. Thus it is easy to account for the increasing activity in the industry during October and November, due to conditions governed by the law of supply and demand, with no organized authority directing production weekly for manufacturers.

Using a Department of Commerce compilation of reports of 296 identical manufacturers representing 357 mills, for comparison of September 1934 and 1933, it appears the American hosiery industry was in no better position fundamentally than a year ago. Production in September this year was around 900,000 dozens less, all classes of hosiery, and orders were booked for approximately 300,000 dozens more. But shipments fell off by 325,000 dozens, unfilled orders were for almost 700,000 dozens less at the end of the month than at the beginning, while stocks in mills increased by 1¾ million dozens.

Men's seamless showed a healthy decline in production, considering the drop in orders, shipments, and unfilled orders at the end of the month, and increased stocks. Production of women's silk hosiery, both full-fashioned and seamless was less in September this year than in the corresponding month of 1933, while women's seamless rayon went ahead by more than 30 per cent, rayon full-fashioned falling back from 42,467 dozens to 6721 dozens. Rayon and cotton in mixture declined in production in men's half hose and in juvenile lines and infants' socks. Drops in rayon-cotton mixture were rather radical in practically all lines. Noteworthy declines are recorded as to men's rayon and wool and silk and rayon. Changing reports as to mixtures indicate considerable experimentation is going on.

Final Decision on Ringless Royalty Seems Imminent

A somewhat definite statement, in interview form, from the Textile Patents Corporation late in November made it appear that an ultimatum to what, for convenience, is referred to as the outer patent pool—a group of important full-fashioned hosiery manufacturers said to be headed by the Gotham Silk Hosiery Co., Inc.—would be delivered reasonably soon, perhaps before the December issue of COTTON reaches the readers.

The outer patent pool, about the time forms of contracts for licensing the production of hosiery by the three-carrier process were being issued, protested some of the terms of the proposed agreement. An objection was raised to a ten cents a dozen royalty to be paid by licensees, of which five cents would be distributed among the group of a few manufacurers who were the original sponsors of the application for a patent, issued eventually to Charles Kaufman, associated with the Julius Kayser & Co. The outer patent pool group, comprising manufacturers in Reading, Philadelphia, in the southern belt and elsewhere, which has been conducting its warfare in secret fashion, has been standing pat on a royalty of five cents a dozen. As a matter of fact, a spirit of jealously has been indicated for some time.

Efforts by the Textile Patents Corporation to compose the differences separating the two powerful groups, which if merged and operated in strict unison, might dominate the American full-fashioned hosiery industry, have dragged for so long that much time was lost in a formal launching of hosiery described as ringless, shadowless, cloudless, etc. Demand has, however, served to stimulate interest in women's silk full-fashioned stockings of the better types. At last, the Textile Patents Corporation is pledged, in an interview with Vice President W. R. Smith, to announce a plan of procedure (possibly through the courts), and a definite program to be "submitted to the trade for final consideration".

That the battle for modifications, for any plan acceptable to those who claim to have control of all rights vested by the Kaufman patent, will be hard fought seems no idle guess, and it is predicted that for perhaps some months patent attorneys will be the chief beneficiaries of the three-carrier invention.

New contracts to be submitted to the trade are to be "positively in final form and will not be changed under any circumstance," is a part of a preliminary ultimatum served upon the outer patent pool. After the new forms have been received by manufacturers, the Textile Patents Corporation is to "launch an energetic campaign for the legal protection of its patent and for obtaining desired trade objectives for licensees".

Present licensees, operating under contracts which were objected to in form by the outer patent pool, are promised "the additional advantages that are incorporated in the new program, and lists of licensees are to be mailed simultaneously to wholesalers and retailers immediately the final program is announced."

All the while that the trade has been waiting for the "final" announcement of the Textile Patents Corporation, true ringless hosiery was being offered in leading department stores at prices in a range of 75 cents to $1.35 a pair, and in some shops for 59 cents, while producers of 39- and 42-gauge hosiery of the conventional types were reaping a harvest, from the viewpoint of shipments, selling at $4.75 to $5 a dozen, better construction in both gauges at 25 cents a dozen more.

Price Competition and Jobber Apathy Feature Underwear Trade

Outstanding incidents in the underwear trade in November were price competition in men's shorts and athletic shirts and jobber apathy toward goods for fall and winter, despite lessened production of seasonal garments, notably men's union suits heavier than nine pounds, as shown in reports of 471 manufacturers for August and 458 for September, to the Department of Commerce. The tabulation indicates fewer mills were in operation in September than in August. This might be attributed to the strike in the cotton textile industries during a part of September. As

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shipments also declined for September, it would appear that an effect of the strike may have been to cause distributors to contract more conservatively for even their nearby needs.

A few mills have reported a fair amount of business in the way of repeat orders for fall and winter goods, and there appears to have been a delay in deliveries from the mills more fortunate than the majority as to early bookings. In a general sense, trading in heavies declined in volume following a period of some activity. Conclusive information as to actual trends seems lacking, but there appears no doubt that distributors were not wholly satisfied that prices for heavies might not undergo a change after the smashing quotations on "summer lingerie" for men.

An up-state Pennsylvania manufacturer, about the latter part of October, was accepting one dollar a dozen for men's combed yarn athletic undershirts. The effect of this new low was felt instantly among manufacturers maintaining established prices for lines of standard production. One dollar a dozen shirts supplied an inspiration for a sharp reduction in prices for woven shorts, types of which were on sale in chain stores for 20 cents a pair. Thus, men accustomed to light weights for fall were able to slip into a complete suit of abbreviated underwear at a cost no greater than 50 cents. That such sensationally low prices should appear soon after it became known that there had been severe curtailment of production was amazing to some ordinarily astute manufacturers.

Except as to woven fabric shorts, the statistics of production, shipments, etc., had to do mainly with cotton knit underwear and garments of cotton and wool in combination. The effect on advance business in spring underwear remains conjectural, depending largely on conditions in the raw cotton markets. Some of the Pennsylvania manufacturers specializing in men's and women's medium weight cottons wrote a fair amount of business for virtually spot shipment, buyers for spring remaining for the time in the background pending development of more nearly stabilized markets for raw material and semi-finished cotton products.

Lower prices for cotton snuggies came out in November at some of the promotion sales, former 50-cent garments passing over the counter at three pairs for one dollar, while cotton and wool in mixture continued to fetch the original prices to the consumer, average good lines crossing the counter at 35 cents a pair more than the regular price for all cottons. The more satisfactory showing as to underwear is in a sharp reduction in stocks, figures for November representing a falling off of 614,210 dozens, all classes of knitted other than silk and rayon, or approximately 16 per cent from the beginning of the month.

The rayon underwear market situation is seasonally not so strong, production, shipments and new orders recording declines, unsold stocks in manufacturers' warehouses, however, showing substantial declines, amounting to around 30 per cent from the beginning to the end of September. A trend to lower prices is indicated especially pronounced in light weight underwear.

Outerwear Mills Busier

Many of the knitted outerwear manufacturers have had a short fall season as to sweaters, but this seems fairly compensated for in demand for women's knitted sports wear. Mills are using increasing weights of cotton yarn and, apparently, less of worsted. As to sweaters, manufacturers have felt in some extent the effect of home knitting as a fad that seems to have gained some momentum by reason of no material decrease in unemployment of females. Modern mechanism so nearly duplicates in appearance the hand-knitted garment that manufacturers are looking forward to less of the home work. They are particularly rejoiced that hand knitting is not being applied to bathing suits.

Knitted outerwear manufacturers should have a very busy session of some months beginning around the swing of 1934 into '35, for there is ahead women's sweaters for spring, a considerable amount of business being already in process at the dawn of the opening of manufacturers' lines of bathing suits for the 1935 season. Samples and prices may not be open to distributors in a general way until well along in January, although it is suspected some back-door showings may have been made for the more exclusive trade.

Women's swim suits will require no more yardage of fabric than this year's extreme models, which are said to have approached the zero mark at some of the beaches where a more severe censorship is maintained than at most outdoor bathing places. There will be exceptions by which advocates of nudism may feel their cult is gaining ground, but in the main, women's trunks will combine about the average bodily covering for the open air season of 1934. Why manufacturers are, in many instances, stressing only trunks for men may seem hard to explain, as the less fabric that will be required will mean a lessening in employment of knitters, unless the proposed styles increase consumptive demand.

There is prospect of a strikingly colorful knitted outerwear season, since yarn interests have made it known to the manufacturers that they will issue color cards showing around 50 and more colors and shades. The organized manufacturers therefore expect to discontinue use of the Textile Color Card Association's standards for color, upon which they have placed main dependence for more than fifteen years.

It appears the knitted outerwear manufacturers are making much progress in strengthening their organization, which gives promise of becoming one of the more active in the knitting trades. An ambitious program has been outlined for 1935, "to permit swifter and more direct expression of opinion" of the membership in the eastern area on "crucial and governmental issues," it was announced in a recent prospectus.

Van Straaten Comments on Silk Quality

Does not believe rayon can be substituted for silk to produce a stocking free from rings . . . .

Allegations of unsatisfactory raw silk of the presumably better quality by some of the manufacturers of women's silk full fashioned hosiery, which were referred recently to Van Straaten & Havey, Philadelphia, importers and throwsters, were declared by the senior member of the company as nothing more than a repetition of complaints heard each year following offerings of new season silk. His remedy is the use of silk that may cost manufacturers more than the prices paid for the types complained of. Mr. Van Straaten is vice president of the Gunz Silk Corporation, New York, an extensive importer, and his Philadelphia company is also interested in the Gunz Raw Silk Manufacturing Co. He returned somewhat recently from Japan, a defender of Japanese employees in the silk industry of that country, so skilled in their work that it could not be more efficient if entrusted to skilled labor from any other country. It may be true, he said, that Japanese interests have been experimenting with multiple reeled silk for deliveries to manufacturers in the diameters wanted, for finest chiffon to coarser service weight stockings. But, he added, it may be possible that experimentation along that line is suspended for the present, as the Japanese silk industries are very busy, in providing for a large export trade in finished goods. Home consumption of silk never was greater, it was stated.

The suggestion of a few manufacturers, seeking a means for knitting ringless stockings without the aid of any patented mechanical device, that rayon be substituted for silk, was ridiculed by the Philadelphia throwsters. It was doubted that rayon fabric ever will be produced with the elastic quality of knitted silk. Silk interests, it was admitted, had been negligent in permitting rayon to make such extended inroads in the silk field as have materially lessened the consumption of silk. Raw silk interests are hopeful that the recently organized International Silk Guild will succeed in repairing some of the damage they seem to have sustained by reason of being less alert than the manufacturers of rayon and synthetic yarns by a variety of names.

REVIEW OF THE YARN MARKET

Philadelphia, Pa., November 17, 1934.

THE markets having for some time been giving an exhibition of prices for cotton and for cotton yarns moving in opposite directions, distributors for southern spinners were not a little puzzled, besides expressing dissatisfaction with a disparity in yarn prices which made it extremely difficult to maintain levels at which spinners might at least break even. There has been disappointment that the business that all looked for after the victors at the November state elections had finished with their shouting and the vanquished emerged from their hiding, failed to materialize. It had been a foregone conclusion in the yarn trade, however, that the election result, regardless of what it might be, would not cause the sale of one pound of yarn more or less.

Meetings of carded yarn spinners and of mercerizers early in November were expected to have a wholesome effect, as it was made known at the spinners' session that most recent sales of yarn showed not a fraction of a cent profit per pound, while losses were regarded general.

There had been allegations in the trade that there was an excess of price irregularity; that some interests were accepting prices on a basis of 68 cents for 60s/2 mercerized combed peeler while others were quoting two to four cents more and reporting sales at the inside of their range. The Philadelphia trade had a confirmed report of a sale of mercerized "at the market," the buyer being given a substantial shading from low prices for gray combed peeler. It is stated the order called for 35,000 pounds of mercerized and 15,000 pounds of gray yarn, specifications for the latter to follow at once.

Following the two meetings, one on November 7, the other on the 9th, mercerizers in particular professed to believe the yarn trade was due for a rebound from an unduly low price level and slack buying for consumption. Especially was it desired by combed yarn interests that their group experience a rebound. There was a right good volume of passing business in single combed, but this was accounted for in large part by an insufficiency of price, the market having swung entirely too far in buyers' favor.

The spread between quotations on combed and carded respectively got to be so narrow that manufacturers found it expedient to substitute combed for the carded numbers they had been using. The gap amounted to two to four cents, as to some popular numbers finer than 30s single. In fact, the differential varied as to individual transactions involving some yarns coarser than 20s. It appeared combed yarns were receiving more support than carded numbers for the knitting trades.

Elements among local distributors of cotton yarns were inclined at times to charge spinners with the responsibility for low prices. This of course is safer than to lay the blame at the doors of their customers, who have been giving the market no support, notwithstanding prices were so low as to arouse their criticism. There appears to have been no mad rush to buy good yarn on a basis of 26 cents for single carded on cones, believed to be the lowest price at which commercial grades were sold to the middle of November, when ruling quotations were in a range 26½ to 27 cents.

One house reported that in order to effect a sale of 30s single carded knitting, it was necessary to meet a quotation of less than 31 cents, some spinners holding for 34½. A southern spinner, following the carded yarn group meeting in Charlotte on November 9, notified the Philadelphia trade of an advance to 28 cents. At 31 cents, 30s carded were but 2½ cents lower than combed single of the same count. Underwear yarn sales were said to be lighter, relatively, in the Philadelphia area than in the Mohawk Valley.

A fair stage of business in mercerized yarns has been maintained, due to consumption in the full-fashioned hosiery trades. Underwear carded yarn sales have lagged as a reflex of a slowing down in the underwear industry, at times, this fall, and cotton yarns generally have felt the result of a disposition in the weaving trades to hold up any orders that might contribute later to a heavier inventory than that of the present.

Woolen and Worsted Yarns

Woolen and worsted yarns drifted into better demand late in November, but spinners found it next to impossible to effect sales at prices commensurate with the cost of wool, which, by the way, was believed to be headed toward slightly higher price levels. Worsted manufacturers are, however, taking in yarns somewhat more freely than a month earlier. Many still are drawing against high price contracts of long standing, spinners making adjustments to around current levels. In the worsted group there exists the apparently well grounded fear that woolens will supersede worsted in no little extent next year, more particularly in dress goods. Manufacturers of woolens have more leeway in the matter of adulterating their fabric content than have the worsted mills, and have taken far more business to date for 1935 than was booked by worsted concerns. This is freely admitted by the latter, so far as concerns piece goods for the men's wear trade.

Woolen yarns have been taken rather liberally for the manufacture of sweaters, while for bathing suits worsted is given preference. As indicating the descent in yarn prices, 2/20s, quarter blood grade, which in September 1933 were quoted $1.30 and sold generally at a nickel a pound less, now are quoted around 90 cents, maximum. A recent sale of 50,000 pounds was consummated at 82½ to 85 cents. Soft twist 2/40s, fine, bought as zephyr, at one time quite popular for sweaters, is lower by around the same per cent of last year's high.

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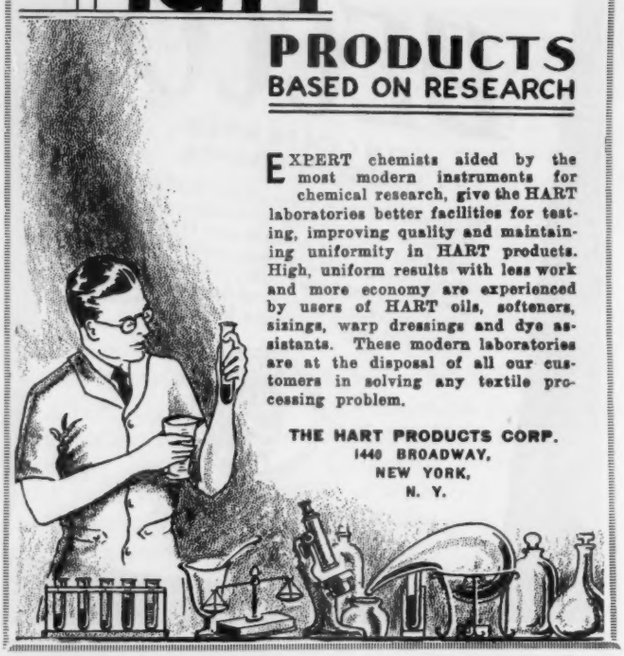

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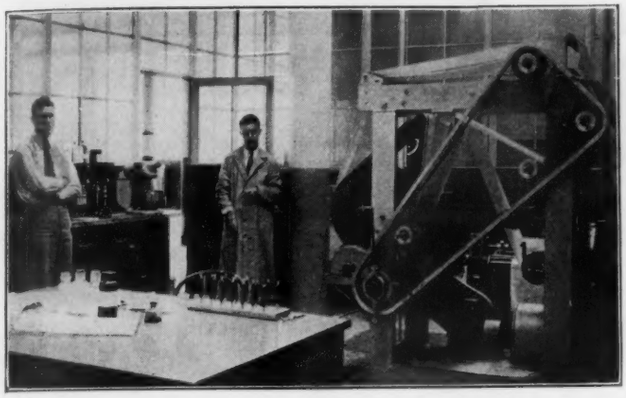

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Few individuals in business today have more demands on their knowledge, experience, resourcefulness and patience than processing executives in textile plants, whether they be plant chemists, boss dyers, boss finishers, or boss slashers. The reason is readily understood. Textiles are not static. New developments follow, one on the heels of the other:—new fabrics, new finishes, and new chemical compounds; and the demand for quick deliveries is more insistent than ever.

The scope of these new developments is beyond the experience of any one individual. Consequently processing executives, when faced with new processing problems, should have the benefit of group experience, or in other words the best consultation service available.

Arnold-Hoffman & Co. offers such a service, based on a broad contact with all branches of the textile industry for over a century. It will cost you nothing to make this service available to your processing executives. It is free to all users of A-H Products. It may cost you considerable to ignore such a service, because the kaleidoscopic changes in textiles have multiplied a hundredfold the opportunities for processing errors.

Arnold, Hoffman & Co., Inc.

Established 1815. Plant at Dighton, Mass.

PROVIDENCE

NEW YORK
PHILADELPHIA

BOSTON
CHARLOTTE

CHEMICAL PRODUCTS

Sizing Gums and Compounds · Soluble Gums
Softeners · Soluble Oils · Tallow · Waxes · Soaps
Flour · Dextrines · Starches · Pigment Colors
and Lakes · Ammonia · Acids · Blue Vitriol
Borax · Bichromate of Soda · Bichromate
of Potash · Liquid Chlorine · Chloride of
Lime · Caustic Soda (solid or flaked).

LYKOPON

THE name **LYKOPON** has always stood for concentrated ***sodium hydrosulfite*** of exceptional quality. Long experience in manufacture and careful laboratory control combine to insure uniformity, purity, strength and stability.

RÖHM & HAAS CO., INC.
222 West Washington Square
Philadelphia, Pa.

HURLEY-JOHNSON CORP.
25 WALKER ST., NEW YORK
SOLE AMERICAN AGENTS FOR
JAMES KENYON & SON, LTD.
BURY, LANCASHIRE, ENGLAND
Celebrated
LAPPINGS and BLANKETS for PRINTING MACHINES
CLEARER, ROLLER and SLASHER CLOTHS.
For Best results in Sanforizing use
KENYON'S ENDLESS WOOLEN BLANKETS

There is Nothing Like

REG. U. S. PAT. OFF.
CALF
for Roller Covering
R. NEUMANN & CO.
Hoboken, N. J.

We Sell Our Brushes On QUALITY—Not PRICE!
Without quality there can be no repeat business . . . it's repeat business that counts.
Our prices are no higher than other reputable brush manufacturers.

GASTONIA BRUSH COMPANY,
GASTONIA, N. C.
Manufacturers, Repairers, and Designers of Textile Brushes

Fully 25% of All Cotton Textile Spindles in the United States are Operated on the Loper System.

Ralph E. Loper Co.
INDUSTRIAL ENGINEERS
Specialists in Textile Costs Over 21 Years
FALL RIVER, MASS. GREENVILLE, S. C.

GOLDENS' Size Kettles

SINGLE or DOUBLE MOTION AGITATOR

CAREFULLY designed under the directions of expert mill operating men, we have eliminated, in our Size Kettles, many of the objectionable features of other designs.

The body of our kettle is cast solid, using the best mixture of grey iron. All fixtures are fitted in workmanlike manner with machined joints.

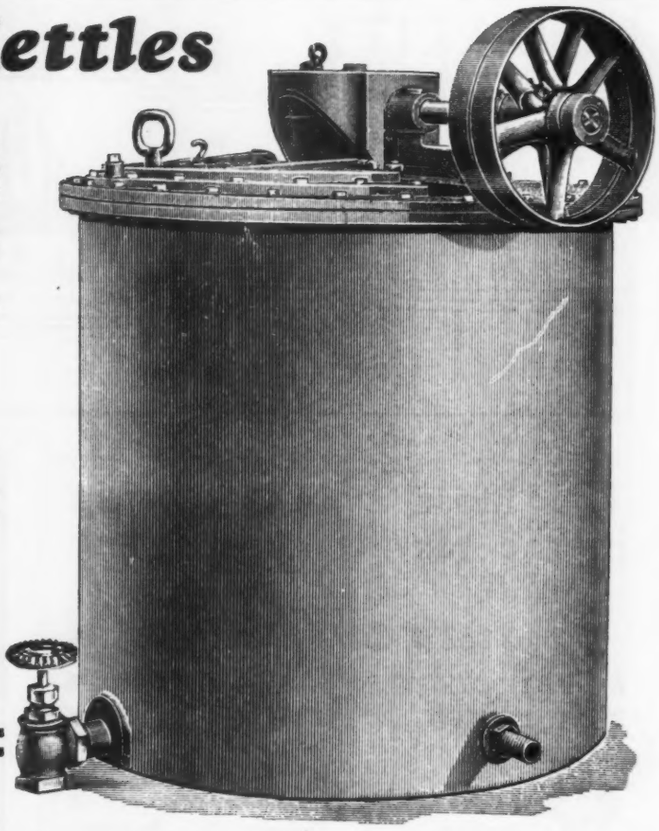
Sizes and capacities of our standard kettles are as follows:

Diameter	Height	Capacity (Gallons)
32"	32"	110
36"	36"	160
42"	42"	250
48"	48"	360

For mixing we can furnish kettles with stirrers, propellers or paddles, or combinations of same.

For heating we can furnish Steam Jacketed Kettles or kettles with brass coils, one or more layers, closed or perforated.

Additional information and detailed drawings furnished on request.



GOLDENS' FOUNDRY & MACHINE CO.

COLUMBUS, GEORGIA

Also manufacturers of

Hangers
Pillow Blocks
Shaft Couplings
Cast Iron Pulleys
V-Belt Sheaves
Ball Bearing Transmission Equipment
Ball Bearing Blower and Fan Boxes
Continuous Dyeing Machines
Raw Stock Dyeing Machines
Dye Liquor Tanks
Cast Iron Tanks
Cloth Inspecting Machines
Grey Iron Castings

VICTOR MILL STARCH

"THE WEAVER'S FRIEND"

A *thin boiling* starch that is *highly* penetrative, carrying the weight *into the fabric* .... Assures 100% Production.

Distributed By

DANIEL H. WALLACE SOUTHERN AGENT GREENVILLE, S. C.

C. B. ILER, GREENVILLE, S. C. F. M. WALLACE, COLUMBUS, GA.

L. J. CASTILE, CHARLOTTE, N. C.

THE KEEVER STARCH CO. COLUMBUS, OHIO

QUALITY . . .

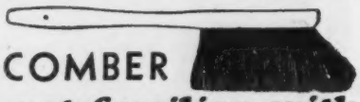
HARNESS FRAMES

ATLANTA
HARNESS - REEDS
FRAMES - HEDDLES
ATLANTA
HARNESS & REED MFG. CO.
ATLANTA, GEORGIA

REEDS HEDDLES

. . . SERVICE

The most popular brush in the textile mills today



No. 163 COMBER

If you are not familiar with this brush, write for a free sample.

ATLANTA BRUSH CO.

Manufacturers -- Designers -- Repairers

ATLANTA, GA.

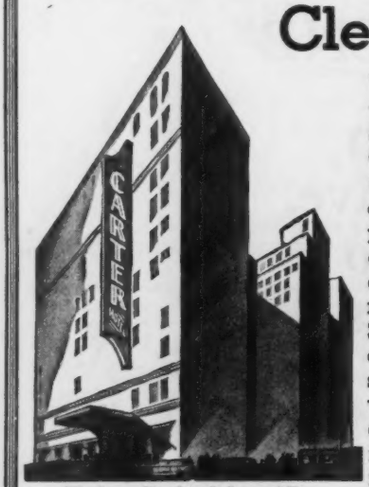
KENWOOD

KENWOOD
WOOL PRODUCTS
REG. U.S. PAT. OFF.

Tanned
Sanforizing Blankets
Palmer Blankets

F. C. HUYCK & SONS
KENWOOD MILLS
Albany, N. Y.

When You Come to Cleveland



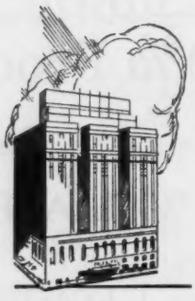
The Carter Hotel, in the heart of Cleveland is conveniently located close to leading department stores, theatres, banks and transportation terminals.

Room Rates Begin at $2.50

When next you visit Cleveland come to the New Carter Hotel. A warm welcome awaits you—prompt, courteous service and delicious food at reasonable prices. Six hundred large, comfortable outside rooms each with private bath and circulating ice water. Exceptional facilities for conventions and sales meetings. Personalized management.

The CARTER HOTEL
PROSPECT NEAR EAST NINTH
CLEVELAND, OHIO
WILLIAM T. CRUSE, Manager

. . . HAVE YOU HEARD *the one about the traveling salesman?*



He went to bed at the William Penn and slept twenty years! Well, maybe that is a little exaggerated. But anyway, the beds at Pittsburgh's number one hotel are so comfortable you don't ever want to get up. The food in the four famous restaurants is equally exceptional, and the prices reasonable. Quiet, well-furnished rooms, $3.50 single; $5.00 double, all with bath.

1600 ROOMS . 1600 BATHS

HOTEL WILLIAM PENN
PITTSBURGH, PENNA.

ROY GRINDERS for IMPROVED STOCK.

ROY GRINDERS for ECONOMY.

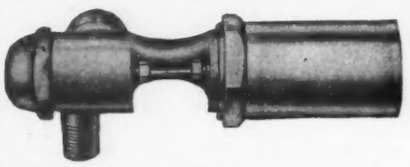
All Makes of Grinders Promptly and Thoroughly Repaired

B. S. ROY & SON COMPANY

Established 1868

Worcester, Mass., U. S. A.

No Clogging in This Humidifier Head



THE defect of clogging in many humidifier heads not only wastes time and labor, but air and horsepower, not to speak of the troubles caused by uneven humidity. The JACKSON Automatic Atomizer is no experiment but is now in use in many mills. It does not clog because it automatically and thoroughly cleans itself every time the humidifying system shuts off. All parts are non-corrosive. Capacity jets are interchangeable.

Maintain the full capacity and efficiency of your humidifying system with JACKSON Automatic Self Cleaning Atomizers. A trial will convince you, too. Quotations on revamping your system or complete installation sent gladly on request to Jackson Moistening Co., Inc., 533 Bedford St., Fall River, Mass., or to G. A. White & Co., P. O. Box 533, Charlotte, N. C.

JACKSON

Automatic ATOMIZER

THE DAVID BROWN COMPANY

FOUNDED 1883

MANUFACTURERS OF "HIGH GRADE"

BOBBINS, SPOOLS, ROLLS, CONES, SKEWERS AND SHUTTLES

OF EVERY DESCRIPTION

FOR TEXTILE MILLS

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Gastonia Mill Supply Co., Gastonia, N. C.

James Supply Co., Chattanooga, Tenn.

Belton C. Plowden, Griffin, Ga.

Russell A. Singleton, Dallas, Tex.

S. F. Jones, R. A. Brand, 212 Johnston Bldg., Charlotte, N. C.

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MAIN FACTORY AND GENERAL OFFICES

LAWRENCE, MASS.

UNIVERSAL

STANDARD RING TRAVELERS

BEST MEET THE SPECIFIC REQUIREMENTS FOR SPINNING AND TWISTING

THE BOWEN PATENTED BEVEL EDGE TRAVELER VERTICAL OFFSET TRAVELER FOR EVEN SPINNING AND TWISTING VERTICAL NE-BOW TRAVELER FOR SILK, RAYON AND FINE WORSTED YARNS. A TRAVELER THAT WILL NOT UNTHREAD. ESPECIALLY DESIGNED FOR LUBRICATING RINGS.

Write For Samples And Particulars.

U. S. RING TRAVELER COMPANY

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AMOS M. BOWEN
Pres. and Treas.

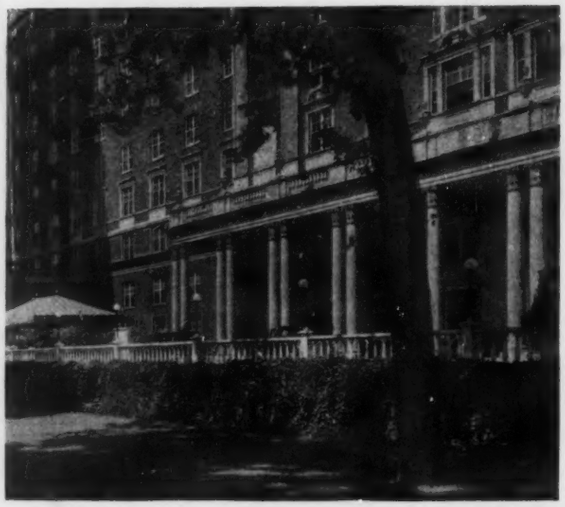
Southern Sales Representatives

Wm. P. Vaughan, Greenville, S. C.

Oliver B. Land, Athens, Georgia

Torrence L. Maynard, Belmont, N. C.

"A TRAVELER FOR EVERY FIBRE"



Why the Textile Man Likes the Biltmore

—Because he is assured comfort and relaxation above all things.

—Because the Biltmore is on the cross-roads of travel.

—Because the Biltmore in close to the business district, yet removed from traffic noises.

—Because his friends usually stop here.

—Because every room is an outside room with private bath; circulating ice water.

—Because the Biltmore gives one-day laundry service at no extra cost.

—Because the food is delicious.

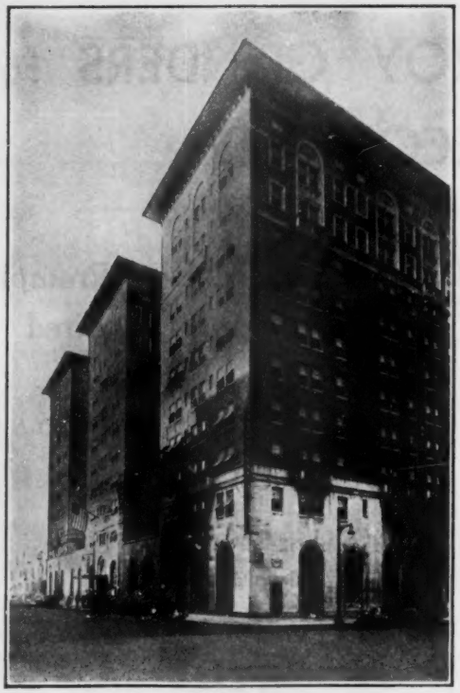
RATES:
Single—$3 $4 $5
$4.50 $5.50 $6.50
Two persons to room, double bed.
$5 $6 $7
Two persons to room, twin beds

MEALS:
Dining Room: Breakfast, from 35c
Luncheon, from 75c.
Dinner, from $1.00.

ATLANTA BILTMORE

"The South's Supreme Hotel"

COMING TO PHILADELPHIA?



A SYMBOL

HOTEL PENNSYLVANIA PHILADELPHIA

OF HOSPITALITY

When you visit Philadelphia make **HOTEL PENNSYLVANIA** your home . . . You will find its location convenient—ten minutes to the business section . . . away from congestion and noise. . . . Known the world over for its hospitality . . . food that satisfies.

600 ROOMS, Each With Bath
From $2.50 Single, $4.00 Double

HOTEL PENNSYLVANIA

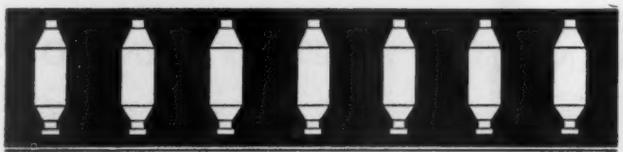
39th and CHESTNUT STREETS
PHILADELPHIA

Clipper Hooks are 15% lower in price than any other hook made in America, yet are unsurpassed in quality & durability

PROTECTION against operating delays is becoming increasingly important. In this new era of regulated labor and raw materials every plant executive should look to the efficiency of his lacing equipment.

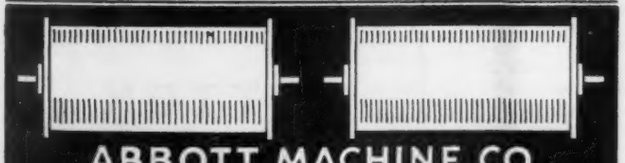
CLIPPER BELT LACER COMPANY, GRAND RAPIDS, MICHIGAN

Clipper Lacing Equipment



LOWEST COSTS *from* Spinning Bobbins *to* Warp Beams on ABBOTT WINDERS

Let us tell you why



ABBOTT MACHINE CO.
WILTON, N. H.

"Why can't we make 'em see that new rings will pay for themselves?"

Do you make your superintendent fight for new equipment—or do you encourage him to point out opportunities for building profit through better operation? Ask your super and overseer: "Are the rings on our frames worn so much that we need new ones to meet competition?" If your rings ARE badly worn, new ones will pay you a definite profit in better production and improved quality.

WHITINSVILLE (MASS.) SPINNING RING CO.

Makers of Spinning and DIAMOND FINISH *Twister Rings since 1873*

Southern Representative: WALTER L. NICHOLSON, 2119 Coniston Place, Charlotte
Mid-West Representative: ALBERT R. BREEN, 2650 Coyne Street, Chicago

TRADING POST EXCHANGE

BUSINESS—EMPLOYMENT—EQUIPMENT—PROFESSIONAL CARDS—OPPORTUNITIES

DISPLAY RATES

Rates are net, payable in advance each month. No commissions or discounts. Page is 3 columns, 10 inches deep—30 inches to page. Space measured by even inch vertically by 1, 2 or 3 columns in width. Column width 2¼ inches. Rates based on the total space used in one year.

	Per Inch		Per Inch
1 inch	$5.00	15 inches	4.20
3 inches	4.80	20 inches	4.00
6 inches	4.60	50 inches	3.80
10 inches	4.40	100 inches	3.60

UNDISPLAYED

Advertisements set "Want ad" style. Positions wanted .05 word per insertion. Minimum charge $1.00 per insertion. Cash with order. All other classifications .10 word per insertion. Minimum charge $2.00 per insertion. Advertisements of equipment, for sale, rent or wanted and professional cards are accepted at display rate only.

Box number addresses care of COTTON, Grant Bldg., Atlanta, Ga., count as eight words.

NOTICE OF SALE

THE PROPERTIES OF THE BRADFORD COTTON MILLS of Montgomery, Alabama, will be sold at Public Sale at the company's office, 722 Bell Street, Montgomery, Alabama, on December 12, 1934, at 12:00 Noon. The properties consist of:—

MONTGOMERY UNIT a Cotton Mill located at 722 Bell Street, Montgomery, Alabama, with 47 cards, 248 Broad Looms, 114 Narrow Looms, 13572 Ring Spindles, (1) Boiler, 46 Tenement Houses, Warehouses, Reservoir, etc., including all Cotton, Goods In Process, Finished Goods, Supplies, and other Miscellaneous items.

PRATTVILLE UNIT a Cotton Mill located at Prattville, Alabama, with 125 Broad Looms, 149 Narrow Looms, 48 Cards, 12,768 Ring Spindles, Dyeing Equipment, 2 Boilers, 72 Tenement Houses, Warehouses, Water Power, etc., including all Cotton, Goods In Process, Finished Goods, Supplies and other Miscellaneous items.

BETTER TEXTILE MACHINERY AT A GREATER SAVING

With 25 years experience with largest textile machinery builders, designing, engineering and selling—with knowledge of how to secure machinery at the greatest savings and how to save time and expense in shipping—We are able to render our clients a service they cannot secure elsewhere. Tell us what you want.

GEORGE F. LANGEVIN, 20-22 Howe Bldg., LOWELL, MASS.

Specialising in Textile Machinery for Relocation.

POSITION WANTED

Full-Fashion Hosiery — young married man thoroughly experienced in manufacturing. Capable foreman and fixer; ambitious; no bad habits. Address Box 129, care COTTON, Grant Bldg., Atlanta, Ga.

Paul B. Eaton

PATENT LAWYER

1408 Johnston Bldg., Charlotte, N. C.

514 Munsey Bldg., Washington, D. C.

Former Member Examining Corps U. S. Patent Office

POSITION WANTED

Young man now overseer weaving and asst. supt. in a 12,000 spindle mill on fancy yarns and dobby upholstery. Wishes to better his connections. Address Box 131, care of COTTON, Grant Bldg., Atlanta, Ga.

POSITION WANTED

General silk and rayon mill superintendent is open for a position. Expert on all kinds of rayon and Celanese fabrics. Would be a valuable man for some large cotton mill making rayon and Celanese fabrics. Address Box 130, care of COTTON, Grant Bldg., Atlanta, Ga.

Products Wanted

One of our clients, a New England manufacturer with a sales organization contacting textile mills throughout the world, desires to manufacture and sell accessory of merit, preferably covered by strong patents, and applicable to existing looms or other textile machinery. Strictest confidence observed.

William L. Fletcher

8 Newbury Street, Boston

Sales Representative Wanted

Competent men to represent an established manufacturer of sulphonated oils, sizing materials, etc., in the Southern states. Excellent opportunity for one capable of taking charge of territory. Our own organization is aware of this advertisement. Address Box 132, care of COTTON, Grant Bldg., Atlanta, Ga.

"Cotton Mill Machinery Calculations"

EVERY Textile Man should have these reference books They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on the subject obtainable. The two volumes are illustrated with 45 diagrams and contain 21 reference tables. Strong, serviceable binding. You can secure them in conjunction with a three-year subscription to COTTON.

Your Advertisement In This Section—

HAVE you some equipment, new or second-hand, which you wish to dispose of; or do you desire a good man to fill a vacancy in your mill; do you desire a position; do you desire your business or professional card placed before the textile industry?—

Then why not try an advertisement in this section of COTTON with its 9,800 copies per month? COTTON has the largest net paid circulation of any journal in the textile field. It reaches the active executives and managers, superintendents, heads of departments and master mechanics, the men directly in charge of the mill and its various departments and the men who buy or dictate the buying of machinery, equipment and supplies.

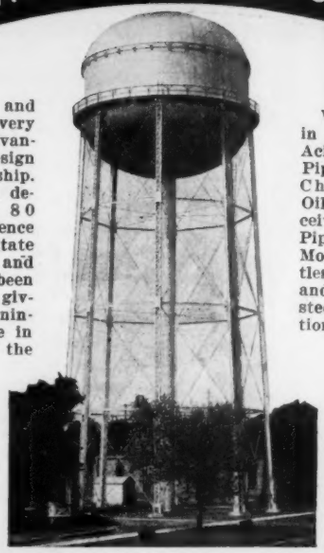
Advertising in this section produces results at small cost. Note the rates above and tell us what you wish to advertise.

COTTON

GRANT BLDG. ATLANTA, GA.

COLE

TANKS TOWERS



Cole Tanks and Towers offer very distinctive advantages in both design and workmanship. They have been developed over 80 years of experience to the highest state of efficiency and hundreds have been erected and are giving perfect, uninterrupted service in every section of the country.

We also specialize in Boilers, Kiers, Acid Tanks, Stand Pipes, Smoke Stacks, Chemical Vessels, Oil Tanks, Air Receivers, Welded Pipes and Tanks, Monel Tanks, Kettles, Storage Bins and other forms of steel plate construction.

Our Engineering Department will be glad to cooperate and submit designs to meet any requirement.

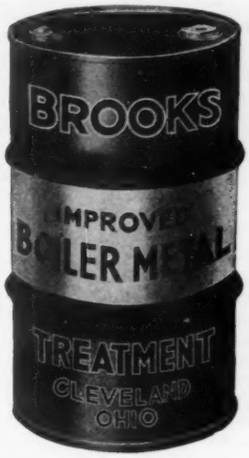
Let us quote you prices when you are in the market for tanks, towers or other steel products.

R.D.COLE MANUFACTURING CO.

NEWNAN EST. 1854 GEORGIA

FABRICATORS OF STEEL AND ALLOY STEEL PLATE

BROOKS Guarantees a Clean Boiler



Savings That Turn The Tide

¶ Many plants throughout this country are operating at a point where even a small decrease in operating costs will be the difference between a loss and a profit.

¶ In thousands of plants the use of Brooks Improved Boiler Metal Treatment has caused savings of 15 to 40% in fuel consumption.

¶ The proper use of Brooks Improved Boiler Metal Treatment will, in addition to eliminating costly repairs caused by scale and corrosion, safely rid your boilers of scale and corrosion and prevent its further formation. This Brooks guarantees.

¶ An inquiry will bring you all the facts covering your own plant application.

Brooks Oil Co.

CLEVELAND, OHIO

NRA MEMBER WE DO OUR PART

AN UP-TO-DATE PRINTING PLANT

equipped with modern machinery and a staff of competent workmen, solicits, thru this publication, a trial order on your printing needs.

We have built a reputation that is known over the entire South by our special attention to the minutest detail.

We are more than ready to answer any question that relates to your printing problems.

Write us and let us quote you on anything from a postal card to a full bound book.

The A. J. Showalter Co.

PRINTERS AND PUBLISHERS

DALTON GEORGIA

You Can't Buy Better Textile Repair Parts!

The long, trouble-free service that Henderson Textile Repair Parts are giving every user is stronger evidence than anything we could say regarding their superiority. The reasons for their superiority are higher quality materials, skilled workmanship and precision patterns that make Henderson parts fit perfectly.

Investigate your stocks of repair parts now—don't be forced to shut-down a machine waiting on a new part. There are precision patterns or parts for practically all looms, pickers and other textile machinery ready for quick shipment to you, and our low overhead and close location enable us to make worthwhile savings and render quicker service. Quotations gladly sent on any textile part required.

HENDERSON FDRY. & MCH. WKS.—HAMPTON, GEORGIA

HENDERSON

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